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MEMORANDUM

SUBJECT: Draft Preliminary Ecological Risk Assessment for the Registration Review of EPTC

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The Environmental Fate and Effects Division (EFED) has completed the preliminary ecological risk assessment for the registration review of the herbicide EPTC (S-ethyl dipropylthiocarbamate). Results of the aquatic risk assessment found that the potential for acute or chronic risk to freshwater and estuarine/marine fish, as well as freshwater and estuarine/marine invertebrates was low. The potential for risk to aquatic plants is also considered low. However, the terrestrial risk assessment found that the LOCs were exceeded for birds on an acute (maximum RQ of 7.79) and chronic basis (maximum RQ 14.68), with LOC exceedances associated with rates lower than maximum application rates. There is uncertainty

concerning the extent of the acute LOC exceedances as the acute value used in calculation is a non-definitive (greater than) value. Additionally, the exposure values do not take into account soil incorporation of EPTC at application, or any losses due to volatilization. Thus the estimates of risk that were calculated using this value can be considered conservative. The LOCs for mammals were also exceeded on both an acute (maximum RQ of 1.05) and chronic basis (maximum RQ 616.86). As with the avian risk assessment, there is uncertainty concerning the RQs because the exposure model does not currently take into account any soil incorporation of EPTC at application, or any losses due to volatilization. Thus, while this assessment predicts the potential for risk to exposed mammals, the estimates of risk that were calculated using these exposure values can be considered conservative. For terrestrial invertebrates, tier 1 acute contact data for adult honey bees result in RQ values that exceed the acute risk LOC of 0.4 for all application rates (maximum RQ of 3.31). No data are available on the toxicity of EPTC to assess acute oral and chronic effects to adult honey bees as well as acute or chronic effects to honey bee larvae. However, based on the highest tested concentration for the adult honey bee contact study, no hazard labeling language would be warranted (*i.e.*, contact LD₅₀ of >12.09 ug a.i./bee). Lastly, as expected with an herbicide, there is a potential for risk to terrestrial plants adjacent to the treated field; specifically, monocots and dicots in dry and semi-aquatic areas; (maximum RQ of 4.42). Based on an analysis of drift, risk can extend to greater than 1000 ft. from the edge of the field for sensitive plant species (*i.e.*, both non-listed and listed LOC is exceeded.

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Executive Summary

The Environmental Fate and Effects Division (EFED) has completed the preliminary ecological risk assessment for the registration review of the herbicide EPTC (S-ethyl dipropylthiocarbamate). EPTC is classified as having low to moderate persistence in the environment and has medium mobility. The major routes of dissipation are through volatilization, runoff and leaching. This risk assessment addresses the impact of various EPTC exposure pathways including runoff, spray drift, and volatilization. Aquatic organisms and terrestrial plants will be exposed through runoff and spray drift. Terrestrial wildlife on the field would be exposed through consumption of contaminated food in and on the treated soil, which would be mainly seeds and terrestrial arthropods, and through inhalation of volatilized molecules. Terrestrial wildlife off the field will be exposed through spray drift contaminating foliage and fruit, as well as seeds and arthropods.

EPTC is slightly toxic to fish (and to aquatic-phase amphibians for which fish serve as surrogates) and is moderately toxic to aquatic invertebrates on an acute exposure basis; new data for chronic toxicity to freshwater fish is presented in this assessment. The compound is practically non-toxic to no more than slightly toxic to birds (and to terrestrial-phase amphibians and reptiles for which birds serve as surrogates) and slightly toxic to mammals on an acute basis. EPTC is practically non-toxic to terrestrial invertebrates (based on acute adult honey bee contact data.)

Table 1 provides a summary of the environmental risk conclusions to aquatic and terrestrial organisms based on the risk quotient (RQ) values and whether they exceed the levels of concern (LOC) for Federally-listed threatened and endangered species (hereafter referred to as listed species) and non-listed species.

Table 1. Summary of Ecological Risk Conclusions for the Registered EPTC Uses

Taxonomic Group	Summarized Risk Characterization and Major Uncertainties
Fish and Aquatic Invertebrates (freshwater and estuarine/marine) (including aquatic-phase amphibians for which fish serve as surrogates)	<p>The potential for acute or chronic risk to freshwater and estuarine/marine fish is considered low, as acute and chronic RQ values do not exceed the acute risk to listed species LOC of 0.05 or non-listed species LOC of 0.5 or chronic risk LOC of 1.0; (maximum RQs ranging from <0.01 to 0.49).</p> <p>The potential for acute and chronic risk to freshwater invertebrates is considered low, as RQ values do not exceed the acute risk or chronic risk LOCs for listed or non-listed species (maximum RQs range from <0.01 to 0.04).</p> <p>While the potential for chronic risk to estuarine/marine invertebrates is considered low (maximum RQ of 0.42), the acute LOC for listed species is exceeded (maximum RQ of</p>

Taxonomic Group	Summarized Risk Characterization and Major Uncertainties
	0.08).
Aquatic and Terrestrial Plants	<p>The potential for risk to aquatic plants is considered low, as the RQ values do not exceed the LOC values for risk to listed and non-listed aquatic plants of 1.0; (maximum RQs ranging from <0.01 to 0.06).</p> <p>There is a potential for risk to terrestrial plants, specifically, monocots and dicots in dry and semi-aquatic areas; (maximum RQ of 4.42). Based on an analysis of ground spray drift, risk can extend to >1000 ft. from the edge of the field for listed and non-listed terrestrial plants</p>
Birds (plus terrestrial-phase amphibians and reptiles for which birds serve as surrogates)	<p>There is a potential for risk to birds on an acute (maximum RQ of 7.79) and chronic basis (maximum RQ 14.68). Effects observed in the avian reproduction study include a reduction in the proportion of viable eggs laid to eggs set.</p> <p>There are exceedances for the acute dose-based, acute dietary-based, and chronic RQs; these LOC exceedances are associated with more than just the use with the highest application rate.</p> <p>With use of granular products, there are exceedances for acute risk only when the granules are applied with no physical incorporation in the soil (<i>i.e.</i>, incorporation by irrigation only). Based on LD₅₀-per-square foot calculations, acute risk is predicted for granular products for birds (all uses) and for mammals (all uses except castor beans).</p> <p>There is uncertainty concerning the RQs; 1) the acute value used in calculation is a non-definitive greater than value, 2) except for the LD₅₀-per-square foot approach, exposure values do not take into account soil incorporation of EPTC at application, thus the estimates of risk that were calculated using this value can be considered conservative.</p>
Mammals	<p>There is a potential for risk to mammals on an acute (maximum RQ of 1.05) and chronic basis (maximum RQ 616.86). Effects observed in the 2-generation rat study include a decrease in body weight and increased incidence of cardiomyopathy and renal tube degeneration in the parental generation. There are exceedances of the LOC based on the chronic dose-based and chronic dietary-based RQs; LOC exceedances for chronic dose-based and chronic-dietary based exposures are associated with more than just the use</p>

Taxonomic Group	Summarized Risk Characterization and Major Uncertainties
	<p>with the highest application rate. RQs still exceed the LOC for the majority of uses and feeding strategies even if the LOAEC is used instead of the NOAEC.</p> <p>Risk extends up to 1000 ft from the edge of field from ground spray drift and there is a potential for risks off of the field from deposition of vapor phase EPTC. This is based on the assumption of no degradation in the air; however, there are data that suggests that thiocarbamates may have a relatively short half-life in the atmosphere, and therefore, actual distances for potential risk would be lower than predicted.</p> <p>There is uncertainty concerning the RQs; exposure values do not take into account incorporation of EPTC at application, thus the estimates of risk that were calculated using this value can be considered conservative.</p>
Bees	<p>Tier 1 Risk Assessment. Based on Tier 1 acute contact risk assessment of adult honey bees, RQ values exceed the acute risk LOC of 0.4 for all application rates (maximum RQ of 3.31). No data is available on EPTC to assess acute oral or chronic oral toxicity as well as acute larval or chronic larval toxicity.</p>

1.0 Problem Formulation

The purpose of problem formulation is to provide the foundation for the ecological risk assessment being conducted for EPTC. The problem formulation sets the objectives for the risk assessment and provides a plan for analyzing the data and characterizing the risk. As part of the Registration Review process, a detailed Problem Formulation (DP Barcode D405959) for this risk assessment was published to the docket [Docket ID: EPA-HQ-OPP-2011-0662] in March 2013. The following section summarizes the key points of that document and discusses any differences between the analysis outlined previously and the analysis conducted in this risk assessment.

1.1 *Stressor Source and Distribution*

1.1.1 Mechanism of Action

EPTC is a selective pre-emergence and early post-emergence thiocarbamate herbicide used to control the growth of germinating annual weeds, including broadleaves, grasses, and sedges. Thiocarbamates act by inhibiting both cell division and elongation, fatty acid and lipid

biosynthesis, proteins, and may alter plant hormonal distribution within a plant (Fuerst, E. P., 1987). EPTC exerts its herbicidal action through inhibition of cuticle formation at the early stages of seedling growth which inhibits germination and seedling development.

1.1.2 Exposure

The measures of exposure to aquatic animals and plants are concentrations in surface water and pore water simulated by the Pesticide Root Zone Model (PRZM) and Variable Volume Water Model (VVWM) in the Pesticide Water Calculator (PWC v. 1.5.2) GUI.¹ which generates the estimated environmental concentrations (EECs) of EPTC in surface water that may occur from use on adjacent crops based on maximum labeled single and yearly use rates among many other parameters. The EECs used in assessment of acute risk are 1-in-10 year return frequency daily maximum values (referred to as “peak” values). For chronic risk assessment, mean concentrations over a specified duration are generated. In both cases, each modeled site is selected to represent a site expected to be more vulnerable to runoff than most locations where use may occur (*e.g.*, based on the crop being grown).

Terrestrial wildlife may be exposed to EPTC via consumption of residues on food items generated by spray applications. For spray applications, the T-REX model (Terrestrial Residue EXposure model; v. 1.5.2; June 6, 2013²) is used to predict dietary exposure to EPTC residues on foliar surfaces and insects using the Kenaga nomogram as modified by Fletcher (Hoerger and Kenaga 1972, Fletcher *et al.* 1994). A default 35-day foliar dissipation half-life is used for terrestrial exposure modeling in this assessment, as suitable foliar dissipation data specific to EPTC are not available (*e.g.* Willis and McDowell 1987).

As described in the problem formulation, screening level models indicate that potential exposure of terrestrial organisms to EPTC that volatilizes from the treated field and redeposits outside of the application area may be of concern. AERSCREEN (v. 16216) is used to estimate the deposition of vapor phase EPTC to determine the distance from the edge of field where the concentration would be below levels of concern for non-target listed and non-listed plants and animals.

The TerrPlant (v. 1.2.2; December 26, 2006) model is used to derive EECs relevant to terrestrial and wetland plants for the uses of EPTC. The model employs the assumption that default fractions of the intended application are transported to an adjacent field through runoff and spray drift. The AgDrift (v. 2.1.1; December 29, 2011) model is used to assess ecological risk from spray drift to areas adjacent to the treated field. Measures of exposure to terrestrial plants are expressed as a fraction of the mass of the EPTC applied to the treated field.

¹ http://www.epa.gov/pesticides/science/models_db.htm

² Information about the models can be found at http://www.epa.gov/pesticides/science/models_db.htm

The Bee-REX Model, as is outlined in the Guidance for Assessing Pesticide Risk to Bees, signed in June 2014, is used to derive EECs relevant to adult and larval bees for exposure via contact or oral. A full summary of the model and its assumptions can be found within this guidance.

1.2 Stressor of Concern

In order to determine the stressor of concern for aquatic and terrestrial exposure two factors are considered: exposure and toxicity of parent and any other degradate(s). In case of EPTC, the degradates are not expected to be present in environmentally relevant concentrations. Therefore, the only stressor of concern is parent alone.

1.3 Risk Hypothesis

A risk hypothesis describes the predicted relationship among the stressor, exposure, and assessment endpoint response along with the rationale for their selection. For EPTC, the following ecological risk hypothesis is employed for this national-level ecological risk assessment:

EPTC, when used in accordance with registered labels, will likely lead to off-site movement of the compound via volatilization, runoff, spray drift, and eroded soil leading to exposure of non-target plants and animals at modeled exposure concentrations. Based on information on environmental fate, mode of action, direct toxicity, and potential indirect effect, EFED assumes that registered uses of EPTC have the potential to cause reduced survival, growth, and reproduction to non-target terrestrial and/or aquatic animals and plants.

2.0 Exposure Characterization

2.1 Use and Usage Information

2.1.1 Labeling

In addition to the technical products (Reg. No. **10163-282**, and **19713-557**), there are 13 end-use products that contain EPTC: three of the products are co-formulated with an additional active ingredient, Acetochlor [2-chloro-2 '-methyl-6'-ethy 1-N-ethoxymethylacetanilide (PC code 121601)]. These products are formulated as either granular or emulsifiable concentrates. A summary of all the EPTC formulated products is provided in

Table 2.

Table 2. EPTC Formulated Products

EPA Reg. No.	Product Name	Active Ingredient(s)
100-1083	DOUBLEPLAY SELECTIVE HERBICIDE	67.8% EPTC: 16.9% Acetochlor
10163-281	EPTAM 20-G GRANULES	20% EPTC
10163-283	EPTAM 7-E SELECTIVE HERBICIDE	87.8% EPTC
10163-284	ERADICANE 6.7-E	82.6% EPTC
10163-285	GOWAN EPTAM/ACETOCHLOR 67.8%/16.9% EC HERBICIDE	67.8% EPTC: 16.9% Acetochlor
19713-101	DREXEL EPTC-7E	87.8% EPTC
19713-561	EPTC 7EC	87.8% EPTC
19713-562	RAZENCANE 6.7E	82.6% EPTC
19713-564	EPTAM 7-E SELECTIVE HERBICIDE	87.8% EPTC
19716-568	DREXEL POWER PLAY HERBICIDE	67.8% EPTC: 16.9% Acetochlor
AZ060004	EPTAM 7-E SELECTIVE HERBICIDE	87.8% EPTC
CA080024	EPTAM 7-E SELECTIVE HERBICIDE	87.8% EPTC
FL070007	EPTAM 7-E SELECTIVE HERBICIDE	87.8% EPTC

EPTC is used throughout the United States in agricultural production for a wide variety of food and non-food crops. The registered uses are alfalfa, almond, beans (dried, castor, snap or succulent), broccoli, carrot, citrus, clover, conifers (seed orchard), corn (field, pop, silage, sweet, unspecified), cotton, grapefruit (bearing, nonbearing), fallow, lemon (bearing, nonbearing), lespedeza, lettuce, orange (bearing, nonbearing), ornamentals (ground cover, herbaceous plants, seed orchard, woody shrubs and vines, trees), potato (white/Irish), safflower, sugar beets, sunflower, sweet potato, tangerine, tomato, trefoil and walnut. Recently, an ecological assessment was completed for the use of EPTC in/on grass grown for seed (EPA, 2016). The label application rates range from 1.5 to 14.9 pounds of active ingredient per acre (lb a.i./A) (Table 3). Application equipment and methods for EPTC include ground application, soil band treatment, soil broadcast, direct spray, chemigation, flood treatment, and aerial application. *Due to its volatility, EPTC must be mechanically incorporated, injected in the subsurface of the soil, applied in irrigation water, or be watered-in after application.* Soil incorporation depths can vary from 0.5 to 6 in depending on the crop use and formulation.

For granular formulations, the maximum number of applications and the maximum year application rate (lb a.i./A) were not specified on the EPTC labels. The maximum specified maximum single application rate, therefore, was assumed to represent the maximum yearly application rate.

Table 3. Maximum use rates for EPTC (Refer to Appendix C for the Summary of All Rates)

Crop/Use Site	Maximum Single Application Rate (lb a.i./A)	Maximum Number of Applications	Maximum Yearly Application Rate (lb a.i./A)	Minimum Application Interval (days)
Spray Applications				
Agricultural Fallow, Idle land, Conservation, Reserve; Corn; Citrus (Mechanical Incorporation); Ornamental (Broadcast)	6.1	1	6.1	N/A
Alfalfa (Mechanical Incorporation); Clover	4.0	1	4.0	365
Alfalfa Irrigated	3.0	4	12.0	30
Almond; Sugar beet (Irrigated)	3.1	2	6.2	30
Bean, Dry; Citrus (Irrigated); Tomato; Walnut	3.1	1	3.1	N/A
Carrot	3.0	3	9.0	30
Castor Bean; Cotton	2.0	1	2.0	N/A
Conifer	6.0	1	6.0	N/A
Ornamental (Mechanical Incorporation)	14.8	1	14.8	N/A
Potato	12.2	1	12.2	N/A
Safflower	3.0	1	3.0	N/A
Sugar beet (Mechanical Incorporation)	4.6	1	4.6	N/A
Sunflower	3.1 4.6	2 1	10.8	11 139
Granular Applications				
Agricultural Fallow, Idle land, Conservation, Reserve; Citrus; Conifer; Potato	6.0	NS	NS	NS
Alfalfa (Broadcast); Carrot; Corn; Safflower	3.0	NS	NS	NS
Alfalfa (Soil Incorporation); Bean	4.0	NS	NS	NS
Bean, Dry; Sugar beet; Sunflower	4.5	NS	NS	NS
Castor Bean	2.0	NS	NS	NS
NS- Not Specified				

N/A= Not applicable

NS= Not specified

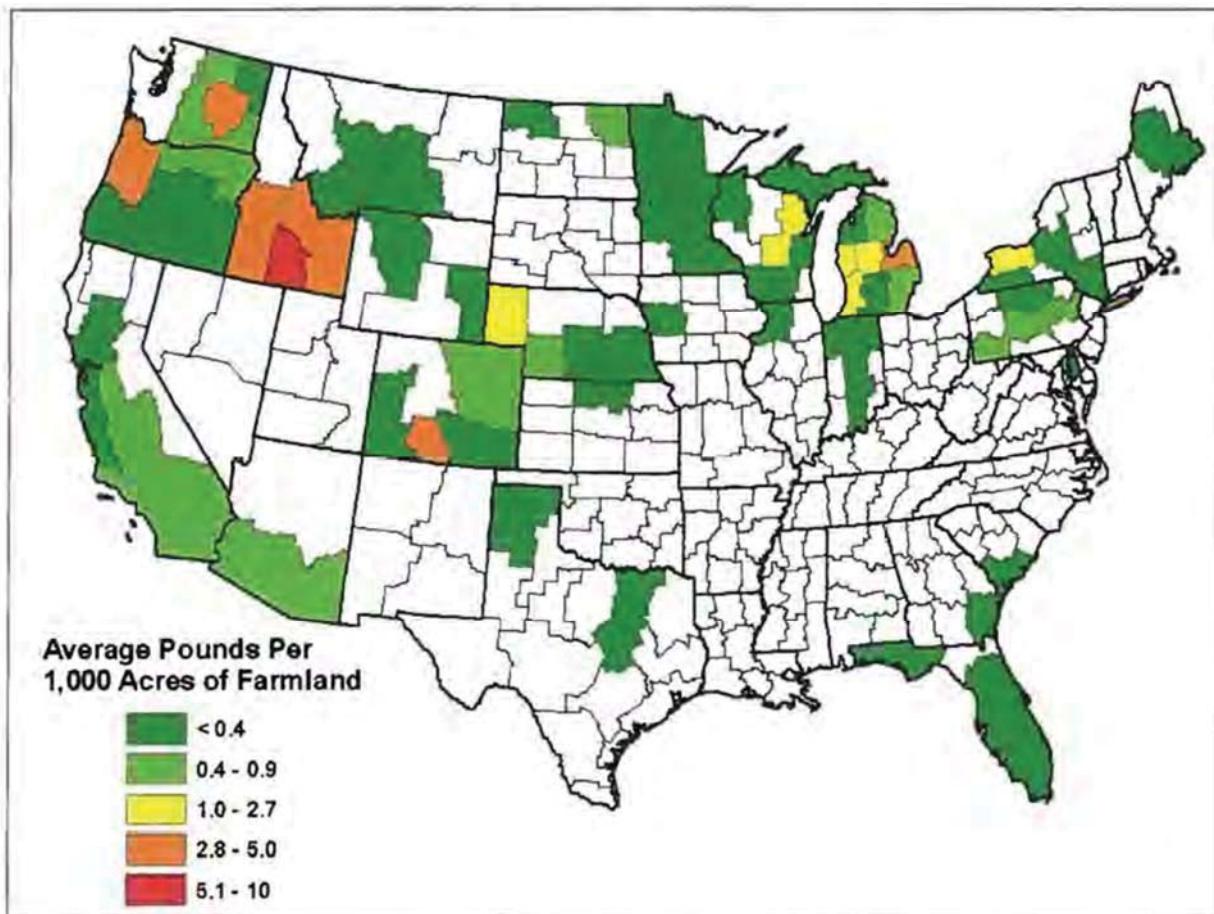
2.1.2 Usage Information

A Screening Level Usage Analysis (SLUA, date 5/11/2016) report for EPTC was provided by Biological and Economic Analysis Division (BEAD). Based on this report, agricultural usage averaged 1.9 million pounds of active ingredient treating an average of 578,788 acres. From

2005-2014, potatoes (42%), dry beans/peas (26%), and beans (11 %) accounted for the largest percentages of usage in terms of total pounds of active ingredient applied. For the same period of time (2005-2014), potatoes (30%), dry beans (15%), and beans (30 %) accounted for the largest percentages of total area treated. Relative proportions indicate that the application rate for potatoes is somewhat higher than the overall average rate while that for dry beans and peas is somewhat lower.

These amalgamated data were obtained from sources including USDA-NASS (United States Department of Agriculture's National Agricultural Statistics Service) and Private Pesticide Market Research (**Figure 1**). Information on non-agricultural use, such as pounds active ingredient applied per year by site, are not available.

Figure 1 EPTC Usage by Crop Reporting District (2007-2011)



2.2 Environmental Fate and Transport

The physicochemical properties of EPTC are shown in Table 4. Based on these properties alone, EPTC is expected to be highly volatile in soil and water.

Table 4. Selected Physical/Chemical Parameters of EPTC

Parameter	Value	Source/Classification
Molecular mass (molecular formula)	189.32 g/mol (C ₉ H ₁₉ NOS)	EPI Suite 4.1
Vapor pressure (20°C)	2.4E-02 mmHg @ 25°C	MRID 42120801
Henry's Law coefficient (calculated from partial pressure and solubility @25°C)	7.47 x 10 ⁻⁴ atm·m ³ /mol 7.1E-4 unitless@25°C	MRID 42120801
Aqueous solubility (20°C)	344 mg/L @ 25°C	MRID 42120801
Log octanol-to-water partition coefficient (log K _{ow}) (PAI, 25°C)	3.34	MRID 42120801

Environmental Fate Properties of EPTC

Environmental fate properties of EPTC are summarized in Table 5. The primary dissipation process for EPTC is volatilization, though runoff and leaching are also important dissipation processes. EPTC is expected to be moderately mobile in soil. The major degradation process for EPTC is microbial-mediated metabolism in soil. Since the major dissipation and degradation pathways of EPTC appear to be volatilization and microbial-mediated metabolism, respectively, EPTC may be more persistent in soil substrata with lower microbial activity, or in groundwater and deep surface water. The overall results of its mechanisms of dissipation and degradation indicate that EPTC has low to moderate persistence in the environment. Abiotic hydrolysis and photodegradation in water are not important degradation pathways for EPTC. The bioconcentration potential of EPTC in fish tissue is low due to rapid depuration.

Because EPTC is fairly volatile, it is important to understand the fate of EPTC once in the atmosphere. Majewski and Capel³ report observed concentrations of EPTC ranging from 0.1 to 2.8 µg/L (ppb) in rain water. EPTC detections in rainwater were found at rural and urban sites in Iowa and Indiana. Detections were seasonally distributed according to spring and summer EPTC applications. An atmospheric chemistry study conducted for thiocarbamates by Kwok, E.S. *et al.* indicated that the dominant removal process for EPTC in air during daylight hours was reaction with OH⁻, and that EPTC would have a short atmospheric lifetime of less than one day due to its reaction with OH⁻ radicals (MRID 42541001). Analyses of the residues produced in the OH⁻ radical reaction showed that S-ethyl N-formyl-N-propylthiocarbamate was the only significant product formed.

³ Majewski, M. and D. Capel. 1995, Pesticides in the Hydrologic System: Pesticides in the Atmosphere – Distribution, Trends, and Governing Factors. Ann Arbor Press, Page 159.

Table 5. Environmental Fate Parameters of EPTC

Parameter	Value	Source/Classification
Persistence		
Hydrolysis half-life (25°C and 40°C)	Stable	MRID 00141373/ acceptable
Aqueous photolysis half-life (25°C)	Stable	MRID 42120803/ acceptable
Soil photolysis half-life (25°C)	Stable	MRID 42120804/ acceptable
Aerobic soil metabolism half-life [degradation half-life] (28±1°C)	46.33 days [This rate includes metabolism and volatilization (CO ₂ and vaporized EPTC): 19.9, 56.3, 23.0, 32.1 days] 51.1 days (soil EPTC + EPTC in volatilization trap). [Estimated metabolism half-life includes volatized EPTC residues]	Upper 90% confidence bound on the mean of half-lives for the four aerobic soils tested in the laboratory. MRIDs 42120805, 42120806, 40420402 MRID 40420402 ¹ An estimate of the aerobic soil metabolism half-lives includes volatilized EPTC residues (from trap).
Aerobic aquatic metabolism half-life [degradation half-life]	226 days: 137 and 51 days	Upper 90% confidence bound on the mean of half-lives for two aerobic aquatic systems in the laboratory. MRID 49752101
Anaerobic soil metabolism half-life	Assumed to be stable	Lack sufficient data to estimate
Anaerobic aquatic metabolism half-life	Assumed to be stable	Assumed stable because of no available data
Mobility		
Organic carbon-normalized adsorption coefficient (K _{oc})	sandy loam: 262 loamy sand: 146 loam: 143 silt loam: 136	MRID 42120808/ acceptable
Freundlich adsorption coefficient (K _{ads})	sandy loam: 0.76 (1/n = 0.90) loamy sand: 1.61 (1/n = 0.93) loam: 2.57 (1/n = 0.95) silt loam: 2.99 (1/n = 0.90)	

Parameter	Value	Source/Classification
Adsorption ratios (K_{dS})	sandy loam: 0.38 loamy sand: 0.68 clay loam: 1.28 loam: 1.82	MRID 40420403/ acceptable
Field Dissipation		
Terrestrial field dissipation half-life	18.8 days – corn application in CO 12.7 days – MN, crop not specified 9.9 days – corn application in NC 26.6 days – KY, crop not specified 56.8 days – corn application in OH	MRID 98250/ supplemental
	16.9 days – bare ground application in MS	MRID 146934/ supplemental
	7.7 days – incorporated application to bare ground in FL	MRID 146935/ supplemental
	6 days – incorporated pre-plant application to potatoes in MS	MRID 40420405/ supplemental
	8 days – incorporated pre-plant application to succulent beans in CA	MRID 40420406/ supplemental
	4.8 days – incorporated pre-plant application to corn in CA	MRID 40420407/ supplemental
	3 to 6 days – irrigated post-plant application to alfalfa in CA	MRID 41724305/ supplemental
	2 days – incorporated and irrigated bare ground application in CA	MRID 42120810/ supplemental
	7 days – incorporated and irrigated bare ground application in CA	MRID 42120811/ supplemental
Fish Bioconcentration		
Fish bioconcentration factor (steady state)	edible fish: 33x whole fish: 57x non-edible fish: 80x	
Depuration rate constant	edible fish: 0.14 whole fish: 0.15 non-edible fish: 0.21	Supplemental MRIDs 40575101, 40575102
<p>1. The aerobic soil metabolism half-life estimate is based on an EPTC measurements in Keeton soil from MRID 40420402, and do not include volatilization; <i>i.e.</i>, the total amount of EPTC residues remaining after application was calculated by adding EPTC extracted from the soil as well as EPTC extracted from foam plugs that had captured volatilized EPTC.</p>		

Transformation Products

A few environmental fate studies, mainly mobility studies, have been submitted for the EPTC transformation products. EPTC does not appear to have any major transformation/degradation

products (>10% of applied) resulting from environmental processes in soil and water (Table 6). EPTC's primary minor transformation/degradation products in soil and water are EPTC sulfoxide (ESO) and dipropylamine (a synonym is di-n-propylamine). Available data suggest that these compounds form at relatively low percentages of applied radio-labeled EPTC, do not accumulate, and degrade at rates similar to the parent EPTC.

Table 6. Environmental Fate Parameters of EPTC Transformation Product

Transformation Product	Parameter	Value	Source/Classification
Mobility			
EPTC-Sulfoxide (ESO)	Organic carbon-normalized adsorption coefficient (K_{OC})	K_{OC} ranges from 13 to 67	45306701/ supplemental
	Freundlich adsorption coefficient (K_{ads})	K_{ads} ranges from 0.13 to 1.15	

2.3 Aquatic Exposure Modeling

Estimated environmental concentrations of EPTC in surface water, pore water and sediment were generated based on maximum labeled single and annual use rates among many other parameters. Surface water, pore water and sediment EECs were generated using the Pesticide Root Zone Model (PRZM) and Variable Volume Water Model (VVWM) in the Pesticide Water Calculator (PWC v. 1.5.2) GUI. The PWC GUI is a graphical user interface used to facilitate inputting chemical and use specific parameters into the appropriate input files and chemical files into the PRZM-VVWM models. The PWC estimates pesticide concentrations in water bodies that result from pesticide applications to land. More information on models used for aquatic exposure are present in the Agency website⁴.

2.3.1 Modeling Inputs

Model input parameters for EPTC are shown in Table 7. Model input parameters were selected according to input parameter guidance (EFED 2009, EFED 2015). The modeling approach for assessing soil volatilization of EPTC, however, does not follow the standard guidance (EFED 2015). In order to model volatilization from soil, modeling scenarios require additional soil property data including the percent sand and clay in each soil horizon, temperature at the lowest point in the simulated profile, and soil albedo to allow estimation of pesticide volatilization from soil. Because these soil properties in quality control and quality assured (QC/QA) surface water model scenarios are not available, soil volatilization in the surface water

⁴ URL: <https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/models-pesticide-risk-assessment>

modeling was conducted using the soil metabolism half-life for EPTC ($t_{1/2}=46.33$ days) with no correction for volatilized EPTC. This modeling strategy assumes that the EPTC volatilization rate from soil is indirectly accounted for in the soil metabolism half-life of EPTC. To assess the impact of using aerobic soil half for capturing both volatilization and degradation in surface water modeling, EECs from available QC/QA (indirect method) and scenarios modified to contain the necessary soil properties for simulating volatilization from soil (direct method). For the latter, the soil metabolism half-life for EPTC was corrected to represent only EPTC degradation.

EPTC abiotic hydrolysis is very slow. It was described as stable in a 30-day hydrolysis study (MRID 00141373). A re-evaluation of abiotic hydrolysis data provides an estimated half-life of 1,728 days (p-value =0.385) at pH 7. Although the EPTC hydrolysis half-life is estimated from limited data, the use of either stable or 1,728 days as the hydrolysis half-life in PRZM-VVWM modeling does not alter EPTC EECs.

Spray drift modeling was considered for EC formulations (*i.e.*, liquid applications). Standard default ground spray drift fraction of 0.062 and an application efficiency of 0.99 were used according to standard guidance (EFED 2013). The application conditions (rate, timing, depth of application, etc.) for the surface water modeling are shown in Appendix C. These conditions were derived from data provided by Biological and Economic Analysis Branch (BEAD) and a representative EPTC label (refer to Drexel label for EPTC).

Table 7. Selected Fate and Chemical Properties and Input Values for EPTC Used in Surface Water Modeling^a.

Parameter	Value	Source
Molecular Weight: EPTC	189.32 g/mol	MRID 42120801
Water Solubility	344 mg/L @ 25°C	MRID 42120801
Henry's Law Coefficient (Unitless)	7.1E-4	Calculated in PWC
Partition Coefficient (Koc) EPTC	172 mL/g organic carbon [136, 143, 146, 266]	MRID 42120808 (mean of 4 values)
Vapor Pressure	2.4E-02 mmHg @ 25°C	MRID 42120801
Hydrolysis @ 25°C pH 7	1,728 days ^b	MRID 00141373
Aerobic Soil Half-life [$t_{1/2}$ or DT ₅₀]	46.33 days <i>[This rate includes metabolism and volatilization (CO₂ and vaporized EPTC): 19.9, 56.3, 23.0, 32.1 days]</i> 51.1 days (soil EPTC + EPTC in volatilization trap).	Upper 90% confidence bound on the mean of half-lives ^b for the four aerobic soils tested in the laboratory. MRIDs 42120805, 42120806, 40420402 MRID 40420402

Parameter	Value	Source
	[Estimated metabolism half-life includes volatized EPTC residues]	An estimate of the aerobic soil metabolism half-lives includes volatilized EPTC residues (from trap).
Water Photolysis	Stable to photolysis	MRID 42120803
Aerobic Aquatic Half-life [t _½ or DT ₅₀]	226 days: 137 and 51 days	Upper 90% confidence bound on the mean of half-lives ^b for two aerobic aquatic systems in the laboratory. MRID 49752101
Anaerobic Aquatic Half-life [t _½ or DT ₅₀]	Stable	Assumed stable because of no available data
Drift [fraction] ground spray	0.062 (liquid formulation) 1.00 (granular formulation)	EFED (2013) ^c
Efficiency [fraction] ground spray	0.99 (liquid formulation) 0.0 (granular formulation)	EFED Guidance (2009)
Heat of Henry	37,000 J/mole	Standinger, et al. (2000)
Diffusion in Air	11,200 cm ² /day	Calculated (Using density =6.5 g/cm ³)

^a EFED, 2009. Inputs determined in accordance with EFED "Guidance for Selecting Input Parameters in Modeling the Environmental Fate and Transport of Pesticides. Version 2.1" dated October 22, 2009.

^b Half-life calculated by PestDF and follows NAFTA Guidance. Dated December 19, 2013.

^c EFED 2013. Guidance on Modeling Offsite Deposition of Pesticides Via Spray Drift for Ecological and Drinking Water Assessments.

^d A half-life of 1,728 days (k=-0.0004/day) was estimated from the 30-day hydrolysis study. Although the EPTC hydrolysis half-life is estimated from limited data, the use of either stable or 1,728 days as the hydrolysis half-life does not alter EECs from PRZM-VVWM modeling.

2.3.2 Modeling Results

An analysis was conducted to assess the impact of modeling strategies on assessing soil volatilization of EPTC and its impact on EECs (

Table 8). Peak EPTC EECs are approximately 0.1 to 7% lower using the indirect soil volatilization method (*i.e.*, volatilization captured in the aerobic soil metabolism half-life) compared to the direct soil volatilization method (mechanistic estimation of soil volatilization). Although this analysis of modeling strategies was conducted using only two scenarios, it illustrates that the soil volatilization modeling approaches are not substantially different in estimation of aquatic exposure for EPTC.

Table 8. Impact Soil Volatilization Modeling on Surface Water EECs for EPTC parent using PWC (Version 1.52)

Scenario	Application Rate (lb a.i./A)	Application Dates (d/m1; d/m2) (DE)	Indirect Soil Volatilization Modeling ¹			Direct Soil Volatilization Modeling ²		
			1 in 10 year			1 in 10 year		
			Peak	21-day	60-day	Peak	21-day	60-day
			µg/L					
ID Potato	2 apps @ 6.2	25/05; 15/08	35.30	25.90	13.60	38	29.3	17.6
NJ Nursery	1 app @ 14.8	-30	51.80	34.50	18.70	51.9	35.2	19.4

1-Indirect Soil Volatilization Modeling- This modeling strategy assumes that the EPTC volatilization rate from soil is captured in the soil metabolism half-life of EPTC. This method was used in the surface water exposure modeling.

2-Direct Soil Volatilization Modeling- The modeling strategy accounts for the impact of volatilization on EPTC aerobic soil metabolism half-life. Volatile residues are included in the aerobic soil metabolism half-life ($t_{1/2}=51$ days).

3-2 cm depth incorporation for EPTC application to potatoes

4-15.24 cm depth incorporation for EPTC application

Surface water EECs from PRZM-VVWM modeling are shown in Table 9 and Table 10. As expected, the highest EECs for EPTC are associated with the highest EPTC application rate of 14.8 lb a.i./A. The 1 in 10 year EPTC concentrations are not expected to exceed 52.40 µg/L for the peak, 37.60 µg/L for the 21-day average, and 22.70 µg/L for the 60-day average.

Table 9. Summary of Surface Water EECs Resulting from Current EPTC labeled uses - Spray Formulations

Use	Scenario	Annual Application Rate (lbs/A)	Timing	1 in 10 year EEC			
				Peak	1-day	21-day	60-day
µg/L							
Agr_Fallow	RangeBSS_+0	6	Preplant	21.00	20.50	13.40	6.67
	MeadowBSS_+0	6	Preplant	20.90	20.50	13.20	6.63
Alfalfa	PAalfalfaOP_+0	4	Preplant	16.30	15.90	10.20	5.41
	CAalfalfa_WirrigOP_+0	4	Preplant	14.10	13.80	11.10	7.30
	MNalfalfaOP_+0	4	Preplant	13.90	13.60	8.95	4.52
	NCalfalfaOP_+0	4	Preplant	17.10	16.60	10.80	5.65
	TXalfalfaOP_+0	4	Preplant	16.10	15.70	11.20	5.92
	ILalfalfaNMC_+0	4	Preplant	14.80	14.50	10.20	5.24
	PAalfalfaOP_+0	4	Fall	17.10	16.70	11.50	7.06
	CAalfalfa_WirrigOP_+0	4	Fall	14.40	14.10	10.10	6.13
	MNalfalfaOP_+0	4	Fall	13.90	13.60	8.89	4.25
	NCalfalfaOP_+0	4	Fall	15.20	14.90	11.50	6.67
	TXalfalfaOP_+0	4	Fall	17.90	17.40	11.80	6.81
	ILalfalfaNMC_+0	4	Fall	18.30	17.70	11.80	6.09
	PAalfalfaOP_+0	12	Est Planting	17.1	16.8	12.4	10.7
	CAalfalfa_WirrigOP_+0	12	Est Planting	15.6	15.4	10.7	8.93
	MNalfalfaOP_+0	12	Est Planting	14.6	14.2	8.74	6.97
	NCalfalfaOP_+0	12	Est Planting	22	21.5	14.7	11.5
	TXalfalfaOP_+0	12	Est Planting	21.3	20.5	14.7	10.9
	ILalfalfaNMC_+0	12	Est Planting	20.5	19.7	13	9.6
Almond	CAalmond_WirrigSTD_+0	6.2	Postemerg	15.20	15.00	10.40	7.92
Dry Bean	ORsnbeansSTD_+0	3.1	At Planting	10.80	10.60	7.53	4.35

	ILbeansNMC_+0	3.1	At Planting	11.00	10.60	7.56	4.14
	WAbeansNMC_+0	3.1	At Planting	10.80	10.50	6.95	3.77
	ORsnbeansSTD_+0	6	Plant bed	15.30	15.00	11.70	8.58
	ILbeansNMC_+0	6	Plant bed	16.80	16.30	11.70	7.89
	WAbeansNMC_+0	6	Plant bed	13.20	13.00	9.55	6.79
	ORsnbeansSTD_+0	7.8	Preplant	19.00	18.60	14.30	10.20
	ILbeansNMC_+0	7.8	Preplant	21.20	20.60	14.90	9.57
	WAbeansNMC_+0	7.8	Preplant	17.10	16.70	11.60	7.80
	ORsnbeansSTD_+0	8.6	At Plant	24.50	24.00	18.40	13.20
	ILbeansNMC_+0	8.6	At Plant	27.40	26.60	19.10	12.30
	WAbeansNMC_+0	8.6	At Plant	22.00	21.50	14.90	10.00
Carrot	FLcarrotSTD_+0	9.1	Preplant	33.20	32.20	22.20	14.70
	PAVegetableNMC_+0	9.1	Preplant	21.60	20.90	15.60	11.60
Castor Bean	ORsnbeansSTD_+0	2	Preemerg	7.24	7.11	5.46	3.16
	ILbeansNMC_+0	2	Preemerg	8.62	8.40	5.38	2.90
	WAbeansNMC_+0	2	Preemerg	6.94	6.82	4.57	2.47
	ORsnbeansSTD_+0	7.8	postplant	13.70	13.50	10.30	8.58
	ILbeansNMC_+0	7.8	postplant	15.90	15.60	11.70	9.90
	WAbeansNMC_+0	7.8	postplant	12.50	12.30	9.26	7.62
Citrus	CAcitrus_WirrigSTD_+0	3.1	Spring	10.80	10.60	6.95	3.70
	FLcitrusSTD_+0	3.1	Spring	11.70	11.40	7.89	4.54
	STXgrapefruitNMC_+0	3.1	Spring	10.80	10.50	6.40	2.93
	CAcitrus_WirrigSTD_+0	6.2	Spring	21.70	21.30	14.00	7.45
	FLcitrusSTD_+0	6.2	Spring	23.60	23.00	15.90	9.16
	STXgrapefruitNMC_+0	6.2	Spring	21.70	21.20	12.90	5.90
Clover	PAalfalfaOP_+0	4	Preplant	14.90	14.50	9.43	5.08
	CAalfalfa_WirrigOP_+0	4	Preplant	14.00	13.70	10.80	7.19
	MNalfalfaOP_+0	4	Preplant	13.90	13.60	8.55	4.20
	NCalfalfaOP_+0	4	Preplant	15.00	14.60	9.36	4.96
	TXalfalfaOP_+0	4	Preplant	13.90	13.60	9.58	5.18
	ILalfalfaNMC_+0	4	Preplant	14.00	13.70	9.50	4.80
Conifer	NurseryBSS_V2_+0	6	Preplant	31.6	30.7	20.4	11
	CAnurserySTD_V2_+0	6	Preplant	20.8	20.4	13.4	7.07
	FLnurserySTD_V2_+0	6	Preplant	28.8	27.9	16.9	8.53
	MInurserySTD_V2_+0	6	Preplant	21.7	21	14	7.33
	NJnurserySTD_V2_+0	6	Preplant	22.4	21.7	14.1	7.45
	ORNurserySTD_V2_+0	6	Preplant	20.8	20.5	14.5	8.19
	TNnurserySTD_V2_+0	6	Preplant	24.8	24.1	16.7	10.4
Corn	STXcornNMC_+0	6.1	postplant	21.20	20.70	12.10	5.85
	CAcornOP_+0	6.1	postplant	21.20	21.00	13.90	7.49
	NCCornWOP_+0	6.1	postplant	23.10	22.40	16.70	10.20
	NDcornOP_+0	6.1	postplant	21.20	20.80	13.70	7.12
	TXcornOP_+0	6.1	postplant	21.20	20.90	13.50	7.25
	CARowCropRLF_V2_+0	6.1	postplant	24.10	22.80	15.50	8.84
	IAcornstd_+0	6.1	postplant	21.20	20.90	13.90	7.36
	ILCornSTD_+0	6.1	postplant	24.20	23.50	15.00	7.94
	INCornStd_+0	6.1	postplant	21.30	20.80	14.80	8.06
	KSCornStd_+0	6.1	postplant	23.80	23.00	16.30	8.42
	MNCornStd_+0	6.1	postplant	22.70	21.60	13.00	6.30
	MScornSTD_+0	6.1	postplant	28.90	28.20	19.90	11.40

	NECornStd_+0	6.1	postplant	26.80	25.90	17.40	9.29
	PAcornSTD_+0	6.1	postplant	21.20	20.80	15.10	9.00
	STXcornNMC_+0	6.1	Preemerg	21.20	20.70	12.70	6.41
	CAcornOP_+0	6.1	Preemerg	21.90	21.40	15.00	7.88
	NCCornWOP_+0	6.1	Preemerg	24.00	23.50	16.00	8.85
	NDcornOP_+0	6.1	Preemerg	21.20	20.80	13.00	6.48
	TXcornOP_+0	6.1	Preemerg	21.50	20.70	14.20	7.19
	CARowCropRLF_V2_+0	6.1	Preemerg	24.40	23.40	17.30	9.97
	IAcornstd_+0	6.1	Preemerg	29.40	28.30	17.90	9.02
	ILCornSTD_+0	6.1	Preemerg	25.20	24.50	15.80	8.34
	INCornStd_+0	6.1	Preemerg	25.90	25.20	17.90	10.10
	KSCornStd_+0	6.1	Preemerg	27.10	26.10	18.80	9.62
	MNCornStd_+0	6.1	Preemerg	21.30	20.80	12.90	6.18
	MScornSTD_+0	6.1	Preemerg	37.20	35.90	24.40	14.30
	NECornStd_+0	6.1	Preemerg	27.00	25.90	18.90	10.10
	PAcornSTD_+0	6.1	Preemerg	24.20	23.50	15.20	8.26
Cotton	CAcotton_WirrigSTD_+0	2	Preplant	11.30	11.10	7.22	3.82
	MSCottonSTD_+0	2	Preplant	15.30	14.90	11.00	6.07
	NCcottonSTD_+0	2	Preplant	12.90	12.60	8.84	5.05
	STXcottonNMC_+0	2	Preplant	10.40	10.10	5.94	2.93
Ornamental	CAnurserySTD_V2_+0	6.2	Spring	21.50	21.10	13.80	7.31
	FLnurserySTD_V2_+0	6.2	Spring	29.80	28.90	17.50	8.81
	MInurserySTD_V2_+0	6.2	Spring	22.50	21.70	14.50	7.57
	NJnurserySTD_V2_+0	6.2	Spring	23.20	22.50	14.50	7.70
	ORnurserySTD_V2_+0	6.2	Spring	21.50	21.20	15.00	8.46
	TNnurserySTD_V2_+0	6.2	Spring	25.60	24.90	17.30	10.70
	NurseryBSS_V2_+0	6.2	Spring	32.60	31.70	21.10	11.40
	CAnurserySTD_V2_+0	14.8	Summer	51.40	50.30	32.90	17.70
	FLnurserySTD_V2_+0	14.8	Summer	52.40	51.40	34.00	17.80
	MInurserySTD_V2_+0	14.8	Summer	51.70	50.40	31.90	16.70
	NJnurserySTD_V2_+0	14.8	Summer	51.80	50.50	32.40	17.00
	ORnurserySTD_V2_+0	14.8	Summer	51.50	50.40	34.50	18.70
	TNnurserySTD_V2_+0	14.8	Summer	52.00	51.20	37.60	22.70
	NurseryBSS_V2_+0	14.8	Summer	51.50	50.60	33.50	17.40
Potato	MEpotatoSTD_+0	1.5	Postplant	6.35	6.27	5.37	3.48
	IDNpotato_WirrigSTD_+0	1.5	Postplant	5.82	5.74	4.70	3.49
	MEpotatoSTD_+0	6.2	Postemerg	28.30	27.60	18.10	11.90
	IDNpotato_WirrigSTD_+0	6.2	Postemerg	22.10	21.40	14.30	7.36
	IDNpotato_WirrigSTD_+0	12.2	Postemerg	35.30	34.30	25.90	13.60
	MEpotatoSTD_+0	12.2	Postemerg	51.70	50.50	33.20	19.60
Safflower	NDcanolaSTD_+0	3.1	Postemerg	10.80	10.60	6.63	3.54
	NDwheatSTD_+0	3.1	Postemerg	11.10	10.60	6.66	3.62
	CAWheatRLF_V2_+0	3.1	Postemerg	14.50	13.90	9.86	5.79
	ORwheatOP_+0	3.1	Postemerg	10.80	10.60	7.77	4.78
	TXwheatOP_+0	3.1	Postemerg	12.40	12.10	8.65	4.96
	NDcanolaSTD_+0	3.1	Preplant	12.10	11.70	9.09	4.33
	NDwheatSTD_+0	3.1	Preplant	12.10	11.60	8.63	4.07
	CAWheatRLF_V2_+0	3.1	Preplant	12.80	12.50	10.00	6.41
	ORwheatOP_+0	3.1	Preplant	10.80	10.60	7.54	4.44
	TXwheatOP_+0	3.1	Preplant	18.20	17.80	11.50	7.38

Sugar beet	MNsugarbeetSTD_+0	3.1	Preplant	12.10	11.60	8.64	4.07
	CAsugarbeet_WirrigOP_+0	3.1	Preplant	11.10	10.70	8.62	5.78
	MNsugarbeetSTD_+0	4.6	Fall	16.20	15.80	9.83	5.57
	CAsugarbeet_WirrigOP_+0	4.6	Fall	16.00	15.80	11.80	7.54
	MNsugarbeetSTD_+0	4.6	postplant	6.50	6.38	4.63	2.83
	CAsugarbeet_WirrigOP_+0	4.6	postplant	1.38	1.36	1.14	0.82
Sunflower	NDcanolaSTD_+0	3	Postemerg	10.8	10.6	6.63	3.54
	NDwheatSTD_+0	3	Postemerg	11.1	10.6	6.66	3.62
	ORwheatOP_+0	3	Postemerg	10.8	10.6	7.77	4.78
	TXwheatOP_+0	3	Postemerg	12.4	12.1	8.65	4.96
	CAWheatRLF_V2_+0	3	Postemerg	14.5	13.9	9.86	5.79
	NDcanolaSTD_+0	3	Postemerg	10.8	10.6	6.63	3.54
	NDcanolaSTD_+0	4.6	Fall	16.20	15.70	9.34	5.21
	NDwheatSTD_+0	4.6	Fall	16.40	16.00	9.97	5.50
	CAWheatRLF_V2_+0	4.6	Fall	16.00	15.80	12.20	8.22
	ORwheatOP_+0	4.6	Fall	16.00	15.80	12.20	7.42
Tomato	CAtomato_WirrigSTD_+0	3.1	Postplant	11.00	10.90	9.03	6.47
	FLtomatoSTD_V2_+0	3.1	Postplant	11.10	10.90	8.61	5.43
	PAtomatoSTD_+0	3.1	Postplant	11.10	10.90	8.61	5.43
Walnut	WAorchardsNMC_+0	3.1	Est Planting	10.80	10.50	6.93	3.76
	CAOliveRLF_V2_+0	3.1	Est Planting	10.80	10.60	6.87	3.61
	CAAlmond_WirrigSTD_+0	3.1	Est Planting	11.10	10.80	6.98	3.54
	ORappleSTD_+0	3.1	Est Planting	10.80	10.60	7.48	4.29
	ORfilbertsSTD_+0	3.1	Est Planting	10.80	10.60	7.46	4.28

Table 10. Summary of Surface Water EECs Resulting from Current EPTC Labeled Uses - Granular Formulations

Use	Scenario	Annual Application Rate lb	Timing	1 in 10 year EEC			
				Peak	1-day	21-day	60-day
				µg/L			
Ag_Fallow	RangeBSS_+0	6	Preplant	1.18	1.15	0.726	0.342
	MeadowBSS_+0	6	Preplant	0.816	0.794	0.493	0.231
Alfalfa	PAalfalfaOP_+0	4	EstPlant	2.81	2.74	1.86	1.03
	CAalfalfa_WirrigOP_+0	4	EstPlant	2.39	2.32	1.73	1.06
	MNalfalfaOP_+0	4	EstPlant	1.66	1.58	0.993	0.491
	NCalfalfaOP_+0	4	EstPlant	4.51	4.39	2.84	1.46
	TXalfalfaOP_+0	4	EstPlant	6.21	6.03	3.76	1.99
	ILalfalfaNMC_+0	4	EstPlant	3.41	3.31	1.95	1.03
Bean	ORsnbeansSTD_+0	4	AtPlant	1.79	1.76	1.27	0.715
	ILbeansNMC_+0	4	AtPlant	8.44	8.14	5.45	2.86
	WAbeansNMC_+0	4	AtPlant	0.367	0.36	0.237	0.132
	ORsnbeansSTD_+0	4	Postplant	1.53	1.45	1.01	0.634
	ILbeansNMC_+0	4	Postplant	7.73	7.49	5.57	3.06
	WAbeansNMC_+0	4	Postplant	0.654	0.643	0.434	0.239
	ORsnbeansSTD_+0	4	Preplant	1.94	1.89	1.51	0.98
	ILbeansNMC_+0	4	Preplant	5.47	5.32	3.21	1.64
	WAbeansNMC_+0	4	Preplant	0.307	0.301	0.198	0.11
Dry Bean	ORsnbeansSTD_+0	4.5	Preplant	3.97	3.88	3.13	2.12
	ILbeansNMC_+0	4.5	Preplant	11.4	10.9	7.58	3.95
	WAbeansNMC_+0	4.5	Preplant	0.103	0.102	0.0983	0.0592
Citrus	CAcitrus_WirrigSTD_+0	6	Spring	0.13	0.123	0.0691	0.0333
	FLcitrusSTD_+0	6	Spring	8.1	7.9	5.59	2.99
	STXgrapefruitNMC_+0	6	Spring	3.07	2.95	1.69	0.776
Conifers	CAnurserySTD_V2_+0	6	Preplant	0.000925	0.000904	0.000591	0.000323
	FLnurserySTD_V2_+0	6	Preplant	9.7	9.46	5.77	2.96
	MlnurserySTD_V2_+0	6	Preplant	2.11	2.07	1.44	0.878
	NJnurserySTD_V2_+0	6	Preplant	2.82	2.71	1.67	0.887
	ORnurserySTD_V2_+0	6	Preplant	0.867	0.846	0.684	0.466
	TNnurserySTD_V2_+0	6	Preplant	4.59	4.46	3.05	1.84
	NurseryBSS_V2_+0	6	Preplant	16.5	16	9.88	4.92
Corn	CAcornOP_+0	3	Preemerg	3.69	3.57	1.98	0.983
	FLsweetcornOP_+0	3	Preemerg	27.6	26.3	13.9	6.21
	NDcornOP_+0	3	Preemerg	1.87	1.77	1.17	0.626
	ORswcornOP_+0	3	Preemerg	3.43	3.33	2.37	1.34
	TXcornOP_+0	3	Preemerg	5.84	5.57	3.07	1.42
	CARowCropRLF_V2_+0	3	Preemerg	6.31	6.07	4.19	2.43
	IAcornstd_+0	3	Preemerg	7.69	7.38	4.8	2.54

	ILCornSTD_+0	3	Preemerg	8.4	8.16	4.72	2.67
	INCornStd_+0	3	Preemerg	7.26	7.04	4.83	2.7
	KSCornStd_+0	3	Preemerg	9.32	9.06	6.09	3.18
	MNCornStd_+0	3	Preemerg	4	3.86	2.19	1.32
	MScornSTD_+0	3	Preemerg	15.7	15.3	10.7	6.13
	NCCornESTD_+0	3	Preemerg	3.31	3.24	2.02	1.08
	NECornStd_+0	3	Preemerg	10.7	10.2	6.9	3.55
	PAcornSTD_+0	3	Preemerg	3.5	3.36	2.53	1.44
	Tier1_+0	3	Preemerg	5.39	5.26	2.65	1.34
Potato	IDNpotato_WirrigSTD_+0	3	earlySpring	3.91	3.81	2.54	1.34
	MEpotatoSTD_+0	3	earlySpring	7.18	7.01	4.53	3.04
	IDNpotato_WirrigSTD_+0	3	Fall	8.64	8.23	4.96	3.1
	MEpotatoSTD_+0	3	Fall	18.7	17.9	11	7.59
	IDNpotato_WirrigSTD_+0	3	Postemerg	3.9	3.8	2.88	1.55
	MEpotatoSTD_+0	3	Postemerg	11.7	11.5	7.36	3.92
	IDNpotato_WirrigSTD_+0	6	earlySpring	7.82	7.62	5.09	2.67
	MEpotatoSTD_+0	6	earlySpring	14.4	14	9.06	6.07
	IDNpotato_WirrigSTD_+0	6	Fall	17.3	16.5	9.92	6.19
	MEpotatoSTD_+0	6	Fall	37.4	35.8	22	15.2
	IDNpotato_WirrigSTD_+0	6	Postemerg	7.79	7.6	5.76	3.1
	MEpotatoSTD_+0	6	Postemerg	23.5	22.9	14.7	7.83
Safflower	NDcanolaSTD_+0	3	Preplant	1.67	1.59	0.952	0.473
	NDwheatSTD_+0	3	Preplant	2.52	2.42	1.37	0.698
	CAWheatRLF_V2_+0	3	Preplant	2.87	2.79	2.04	1.12
	ORwheatOP_+0	3	Preplant	1.23	1.19	0.896	0.582
	TXwheatOP_+0	3	Preplant	3.52	3.38	2.33	1.26
Sugarbeet	MNsugarbeetSTD_+0	4.5	Fall	3.44	3.15	1.75	1.3
	CAsugarbeet_WirrigOP_+0	4.5	Fall	1.17	1.14	0.875	0.631
Sunflower	NDcanolaSTD_+0	4.5	Fall	0.607	0.547	0.334	0.185
	NDwheatSTD_+0	4.5	Fall	3.23	2.57	0.844	0.403
	CAWheatRLF_V2_+0	4.5	Fall	2.39	2.23	1.2	0.57
	ORwheatOP_+0	4.5	Fall	1.68	1.49	0.631	0.311
	TXwheatOP_+0	4.5	Fall	11.3	10.6	4.44	1.69

2.4 Monitoring

Surface water monitoring data were analyzed to assess EPTC concentrations in ambient surface waters. Surface water monitoring data were collected from The Water Quality Portal (WQP), California Surface Water Database (CA SURF), USGS NAWQA (NAWQA), and USGS-EPA Pilot Reservoir Monitoring Study. Attributes of the monitoring programs for EPTC are shown in Table 11.

Table 11. Attributes of Monitoring Programs for EPTC

Monitoring Program	Years	Sites	States	Water Type ¹	Range of LOD
					µg/L
CA SURF	23	171	1	Filtered	0 ² -46
USGS NAWQA	17	1484	50	Filtered	0.002-0.4
USGS Pilot Reservoir Study	2	21	13	Filtered	0.001-0.015
Water Quality Portal	27	665	43	Dissolved	0.001-0.103
	26	830	2	Total	0-0.24
	8	1511	1	Extractable	0-10

1-Water Handling: Filtered= Water samples filtered prior to chemical analysis; Total= Total residues detected in unfiltered sample; and Extractable-Extracted residues from water sample.

2-Zero was used as the LOD and LOQ

The surface water monitoring data were analyzed on a site-year basis where each site-year combination is considered an observation. The surface water data were evaluated to ensure each observation had consistent concentration units (µg/L), defined detection limits, sampling station number, and sampling date. These data were evaluated using an Excel computer program (Chemograph Generator 2.0.2) designed to derive sampling data on a site-year basis. Sampling data includes site identification, sample year, number of samples in a site-year, number of non-detects in a site-year, and ecological relevant exposure concentrations, such as the daily peak, 21-day average, and 60-day average. The program provides a stair-step time forward data imputation process to estimate daily concentrations between the first sample time and last sample time in a given site-year time series. This imputation process allows for estimation of 21-day average and 60-day average concentrations from monitoring data. Data points reported as the limit of quantification (LOQ) or limit of detection (LOD) were adjusted to 1/2 of LOD or LOQ, whichever is reported in the data. The daily peak concentrations represent the highest daily concentration for a site-year. Time weighted concentrations such as the 21-day average and 60-day average concentrations were derived using a forward stair-step imputation process from the first sampling date to the last sampling date in each site-year chemograph. Site-years with 18 or more samples per year were considered as reliable estimates of the time weighted concentrations. This condition was derived, assuming 21-day averages and 60-day averages from equal temporally distributed samples require approximately 17 sampling days (365 days/21) and 6 sampling days (365/60), respectively, to ensure that any time-weighted estimate had two or more data points in the time weight mean estimate.

A summary of maximum EPTC concentrations for surface water is shown in Table 12. The maximum daily peak EPTC concentration is 40 µg/L. This concentration is from a sampling site (USGS Sampling Station 371521120390800) with a mixed watershed use in Merced, CA. The maximum time weighted 21-day average and 60-day average are 20.98 µg/L and 9.46 µg/L, respectively, from a USGS site (USGS 9514000) in Arizona. These concentrations are comparable to concentrations predicted by PWC. The detection frequency of EPTC on a site-year basis was variable among the different monitoring programs. Median detection frequencies in filtered water samples, as a measure of central tendency, showed zero

detections of EPTC in CA SURF, USGS NAWQA, USGS Pilot Reservoir Monitoring Study. However, there was a very high median rate of EPTC detections in filtered water samples in the Water Quality Portal. These data suggest the variable EPTC occurrence in ambient surface water.

Table 12. Maximum EECs for EPTC from Surface Water Monitoring Programs

Monitoring Program	Water Type	Number of Site-Years with Detections	Maximum Detection Frequency (%)	Peak	21-Day ¹ Average	60-Day ¹ Average
				µg/L		
CA SURF	Filtered	0	0	23	4.73	1.03
USGS NAWQA	Filtered	696	0-100 (median=0)	40	20.98	9.46
USGS Pilot Reservoir Study	Filtered	7	0-72.72 (median=0)	0.0375	0.005	0.002
WQP	Dissolved	1309	0-100 (median=100)	40	4.46	2.18
	Total	11	0-60 (median=0)	1.9	1.17	0.857
	Extractable	0	0	5	NA	NA

1-Time weighted averages were derived for site-years with ≥ 18 samples.

Atmospheric Monitoring Data

Atmospheric monitoring data were evaluated using data reviewed and reported in Majewski and Capel, 1995, field volatility showed that 74% of surface applied EPTC in flood water at an alfalfa site in California was lost through volatilization (Cliath et al, 1980). Nations and Hallberg, 1992 found that EPTC was detected in all rain samples collected at agricultural and urban sites in Iowa. In a national study with monitoring stations in IN, OH, WV, and NY, EPTC was detected in rainwater at the IN station (Richard, et al., 1987).

2.5 Terrestrial Exposure Modeling Approach

2.5.1 Exposure to Birds and Mammals

Terrestrial wildlife exposure estimates are typically calculated for birds and mammals by emphasizing the dietary exposure route of uptake of pesticide active ingredients. These exposures are considered to be surrogates for exposures to terrestrial-phase amphibians and reptiles. For exposures to terrestrial organisms, such as birds and mammals, pesticide residues on food items are estimated based on the assumption that organisms are exposed to pesticide residues as a function of the pesticide use pattern.

T-REX (v. 1.5.2) is used to calculate dietary and dose-based EECs of EPTC residues on food items for mammals and birds generated by spray applications for the labeled uses. Input values for

deriving EECs using T-REX are located in Table 13 (spray formulations). Upper-bound Kenaga nomogram values are used to derive EECs for EPTC exposures to terrestrial mammals and birds based on a 1-year time period. Consideration is given to different types of feeding strategies for mammals, including herbivores, insectivores and granivores. Dose-based exposures are estimated for three weight classes of birds (20 g, 100 g, and 1000 g) and three weight classes of mammals (15 g, 35 g, and 1000 g). Terrestrial EECs for spray uses of EPTC are provided in Table 13, Table 14, and Table 15.

Table 13. Input Parameters for deriving terrestrial EECs for labeled uses of EPTC- Spray Formulations (T-REX v. 1.5.2)

Uses Represented	Single App Rate (lb a.i./A)	Max No. of Apps at Max Rate	Min. Interval Between Apps (days)
Agricultural Fallow, Idleland, Conservation, Reserve; Corn; Citrus (Mechanical Incorporation); Ornamental (Broadcast)	6.1	1	365
Alfalfa (Mechanical Incorporation); Clover	4.0	1	365
Alfalfa Irrigated	3.0	4	30
Almond; Sugarbeet (Irrigated)	3.1	2	30
Bean, Dry; Citrus (Irrigated); Tomato; Walnut	3.1	1	365
Carrot	3.0	3	30
Castor Bean; Cotton	2.0	1	365
Conifer	6.0	1	365
Ornamental (Mechanical Incorporation)	14.8	1	365
Potato	12.2	1	365
Safflower	3.0	1	365
Sugarbeet (Mechanical Incorporation)	4.6	1	365
Sunflower ¹	3.1 4.6	2 1	11 139

¹ The proposed label indicates three applications are used annually (2 spring applications and 1 fall application)

N/A = not applicable

Uncertainties in the terrestrial EECs are primarily associated with a lack of data on interception and subsequent dissipation from foliar surfaces. EFED assumes a default 35-day foliar dissipation half-life, based on the work of Willis and McDowell (1987) when data are absent or are insufficient.

Table 14. Dose-based EECs (mg/kg bw) as food residues for birds, reptiles, and terrestrial-phase amphibians from labeled uses of EPTC- Spray Formulations (T-REX v. 1.5.2)

Primary Feeding Strategy →	Herbivores and Omnivores						Insectivores			Granivores		
	Animal Size →		Med		Large		Small		Med	Large	Small	Med	Large
Dietary Items →	Short Grass	Tall Grass	Short Grass	Tall Grass	Short Grass	Fruit, pods, seeds, etc.	Arthropods	Seeds, grains, etc.				
Use(s) ¹ ↓												
Agricultural Fallow, Idleland, Conservation, Reserve; Corn; Citrus (Mechanical Incorporation); Ornamental (Broadcast)												
Alfalfa (Mechanical Incorporation); Clover	1093.34	501.12	615.01	68.33	623.47	285.76	350.70	38.97	279.14	127.94	157.01	17.45
Alfalfa Irrigated	1660.55	761.08	934.06	103.75	946.91	434.00	532.64	59.18	423.95	194.31	238.47	26.50
Almond; Sugarbeet (Irrigated)	13.15	602.76	739.75	82.19	749.93	343.72	421.84	46.87	335.75	153.89	188.86	20.98
Bean, Dry; Citrus (Irrigated); Tomato; Walnut	847.34	388.36	476.63	52.96	483.19	221.46	271.79	30.20	216.33	99.15	121.69	13.52
Carrot	1522.59	697.875	856.46	95.16	868.24	397.95	488.39	54.27	388.72	178.17	218.66	24.30
Castor Bean; Cotton	546.67	250.56	307.50	34.17	311.74	142.88	175.35	19.48	139.57	63.97	78.51	8.72
Conifer	1640.02	751.67	922.51	102.50	935.21	428.64	526.05	58.45	418.70	191.91	235.52	26.17
Ornamental (Mechanical Incorporation)	4045.37	1854.13	2275.52	252.84	2306.84	1057.30	1297.60	144.18	1032.80	473.37	580.95	64.55
Potato	3334.7	1528.4	1875.77	208.42	1901.59	871.56	1069.64	118.85	851.37	390.21	478.89	53.21
Safflower	820.01	375.84	461.25	51.25	467.60	241.32	263.03	29.23	209.35	95.95	117.76	13.08
Sugarbeet (Mechanical Incorporation)	1257.35	576.28	707.26	78.58	716.99	328.62	403.31	44.81	321.01	147.13	180.57	20.06

Primary Feeding Strategy →	Herbivores and Omnivores						Insectivores			Granivores		
	Small		Med		Large		Small	Med	Large	Small	Med	Large
Dietary Items →												
Use(s) ¹ ↓												
Sunflower	1528.82	700.71	859.96	95.55	871.80	399.57	490.38	54.49	390.31	178.89	219.55	24.39

Table 15. Dose-based EECs (mg/kg bw) as food residues for mammals from labeled uses of EPTC- Spray Formulations (T-REX v. 1.5.2)

Primary Feeding Strategy →	Herbivores and Omnivores										Insectivores				Granivores			
	Animal Size →		Small			Med			Large			Small	Med	Large	Small	Med	Large	
	Dietary Items →	Use(s) ¹ ↓	Short Grass	Tall Grass	Short Grass	Tall Grass	Short Grass	Tall Grass	Broadleaf Plants	Broadleaf Plants	Fruits, pods, seeds, etc.	Fruits, pods, seeds, etc.	Fruits, pods, seeds, etc.	Arthropods	Seeds, grains, etc.			
Agricultural Fallow, Idleland, Conservation, Reserve; Corn; Citrus (Mechanical Incorporation); Ornamental (Broadcast)	1395.8 1	639.75	785.14	87.24	964.69	442.15	542.64	60.29	223.67	102.51	125.81	13.98	546.69	377.84	87.60	19.39	13.40	3.11
Alfalfa (Mechanical Incorporation); Clover	915.29	419.51	514.85	57.21	632.59	289.93	355.83	39.54	146.67	67.22	85.50	9.17	358.49	247.76	57.44	12.71	8.79	2.04
Alfalfa Irrigated	1390.1 2	637.14	781.94	86.88	960.76	440.35	540.43	60.05	222.75	102.10	125.30	13.92	544.46	376.30	87.25	19.31	13.34	3.09
Almond; Sugarbeet (Irrigated)	1100.9 4	504.60	619.28	68.81	760.90	348.74	428.00	47.56	176.42	80.86	99.23	11.03	431.20	298.02	69.10	15.29	10.57	2.45
Bean, Dry; Citrus (Irrigated); Tomato; Walnut	709.35	325.12	399.01	44.33	490.25	224.70	275.77	30.64	11.67	52.10	63.94	7.10	277.83	192.02	44.52	9.85	6.81	1.58
Carrot	1274.6 3	584.20	716.98	79.66	880.94	403.76	495.53	55.06	204.25	93.61	114.89	12.77	499.23	345.03	80.00	17.70	12.24	2.48
Castor Bean; Cotton	457.64	209.75	257.42	28.60	316.29	144.97	177.91	19.77	73.33	33.61	41.25	4.58	179.24	123.88	28.72	6.36	4.39	1.02
Conifer	1372.9 3	629.26	772.27	85.81	948.88	434.90	533.74	59.30	220.00	100.83	123.75	13.75	537.73	371.64	86.17	19.07	13.18	3.06
Ornamental (Mechanical Incorporation)	3386.5 6	1552.1 7	1904.9 4	211.6 6	2340.5 7	1072.7 6	1316.5 9	146.2 7	542.67 9	248.72 9	305.25 9	33.92	1326.40	916.72	212.55	47.04	32.51	7.54
Potato	2791.6 2	1279.4 9	1570.2 9	174.4 8	1929.3 9	884.3 8	1085.2 8	120.5 9	447.33 9	205.03 9	251.63 9	27.96	1093.39	755.68	175.21	38.77	26.8	6.21
Safflower	686.46	314.63	386.14	42.90	474.44	217.45	266.87	29.65	110.00	50.42	61.88	6.88	268.87	185.82	43.08	9.53	6.59	1.53
Sugarbeet (Mechanical Incorporation)	1052.5 8	482.43	592.08	65.79	727.47	333.43	409.20	45.47	168.67	77.31	94.88	10.54	412.26	284.93	66.06	14.62	10.10	2.34
Sunflower	1279.8 4	586.59	719.91	79.99	884.54	405.41	497.55	55.28	205.08	94.00	115.36	12.82	501.27	346.44	80.32	17.78	12.29	2.85

Table 16. Dietary-based EECs (mg/kg diet) as food residues for birds, reptiles, terrestrial-phase amphibians, and mammals from labeled uses of EPTC- Spray Formulations (T-REX v. 1.5.2)

Primary Feeding Strategy →	Herbivores, Omnivores, and Granivores				Insectivores	
	Dietary Items →	Short Grass	Tall Grass	Broad-leaf Plants		
Use(s) ↓					Arthropods	
Agricultural Fallow, Idleland, Conservation, Reserve; Corn; Citrus (Mechanical Incorporation); Ornamental (Broadcast)		1464.00	671.00	823.00	91.50	573.40
Alfalfa (Mechanical Incorporation); Clover	960	440	540	60	376	
Alfalfa Irrigated	1458.03	668.26	820.14	91.13	571.06	
Almond; Sugarbeet (Irrigated)	1154.72	529.25	649.53	72.17	452.27	
Bean, Dry; Citrus (Irrigated); Tomato; Walnut	744.00	341.00	418.50	46.50	291.40	
Carrot	1336.89	612.74	752.00	83.56	523.62	
Castor Bean; Cotton	480.00	220.00	270.00	30.00	188.00	
Conifer	1440.00	660.00	810.00	90.00	564.00	
Ornamental (Mechanical Incorporation)	3552.00	1628.00	1998.00	222.00	1391.20	
Potato	2928	1342	1647	183	1146	
Safflower	720.00	330.00	405.00	45.0	282.00	
Sugarbeet (Mechanical Incorporation)	1104.00	506.00	621.00	69.00	432.40	
Sunflower	1342.36	615.25	755.08	83.90	525.76	

The T-REX model (version 1.5.2) was also used to estimate the terrestrial exposures associated with granular applications of EPTC, as shown in

Table 17. Soil incorporation of 2 to 3 inches is required for EPTC granular formulations; thus, it was assumed that the soil incorporation rate is 99%⁵.

⁵ T-REX Model (Version 1.3.1) User's Guide. Environmental Fate and Effects Division, Office of Pesticide Programs, U.S. Environmental Protection Agency. December 07, 2006.

Table 17. Input Parameters for deriving terrestrial EECs for labeled uses of EPTC- Granular Formulations (T-REX v. 1.5.2)

Uses Represented	Single App Rate (lb a.i./A)	EEC (mg a.i./ft ²)
Agricultural Fallow, Idleland, Conservation, Reserve; Citrus; Conifer; Potato	6.0	62.48
Alfalfa (Broadcast); Carrot; Corn; Safflower	3.0	31.24
Alfalfa (Soil Incorporation); Bean	4.0	41.65
Bean, Dry; Sugarbeet; Sunflower	4.5	46.86
Castor Bean	2.0	20.83

2.5.2 Exposure to Bees

Estimating risks to bees associated with the proposed uses of EPTC follows OPP's recently published guidance entitled: "*Guidance for Assessing Pesticide Risks to Bees*"⁶. This guidance presents an iterative, tiered process for assessing risks that considers multiple lines of evidence related to exposure and effects of pesticides to bees.

Potential for Pesticide Exposure of Bees

The first step in this process involves a qualitative assessment of the potential for exposure of bees to the pesticides. This exposure potential is a function of the application method, timing, location (e.g., indoor vs. outdoor), attractiveness of the crop to bees, agronomic practices (e.g., timing of harvest), and the availability of alternative forage sources. Based on current labels, EPTC may be applied pre-emergence or at plant through mechanical incorporation or soil injection and may be applied post-emergence via directed spray or irrigation. These application methods are not likely to result in exposure to flowers that may be visited by bees. However, EPTC is absorbed through the roots and shoots of plants, with some translocation potential throughout the plant. Therefore, there is a potential for bees to be exposed to EPTC on the treated field. For informing the potential for exposure of bees to EPTC on the treated site, information on the attractiveness of crops was considered based on EFSA⁷ and USDA⁸ compilations. Table 18 provides a summary of information on the bee attractiveness of the crops proposed for EPTC applications.

⁶ http://www2.epa.gov/sites/production/files/2014-06/documents/pollinator_risk_assessment_guidance_06_19_14.pdf

⁷ <http://www.efsa.europa.eu/en/search/doc/3295.pdf>

⁸ USDA. 2015. Attractiveness of Agricultural Crops to Pollinating Bees for the Collection of Nectar and/or Pollen. Draft. January 13.

Table 18. Attractiveness of crops registered for EPTC application to bees

Crop Name	Honey Bee Attractive?	Bumble Bee Attractive?	Solitary Bee Attractive?
Agricultural Fallow, Idleland, Conservation, Reserve	Unknown		
Alfalfa	Pollen (Yes) Nectar (Yes)	Yes	Yes
Almond	Pollen (Yes) Nectar (Yes)	Yes	Yes
Bean, Dry	Pollen (Yes) Nectar (Yes)	Yes	Yes
Citrus	Pollen (Yes) Nectar (Yes)	Yes	Yes
Carrot	Pollen (Yes) Nectar (Yes)	Yes	Yes
Castor Bean	Pollen (Yes) Nectar (No)	Unknown	Unknown
Clover	Pollen (Yes) Nectar (Yes)	Yes	Yes
Conifer	Unknown		
Corn	Pollen (Yes) Nectar (No)	Yes	Yes
Cotton	Pollen (No) Nectar (Yes)	Yes	Yes
Ornamental	Unknown ¹		
Potato	Pollen (No) Nectar (No)	Yes	Yes
Safflower	Pollen (Yes) Nectar (Yes)	Unknown	Yes
Sugar beet	Pollen (No) Nectar (Yes)	Unknown	Yes
Sunflower	Pollen (Yes) Nectar (Yes)	Yes	Yes
Tomato	Pollen (No) Nectar (No)	Yes	Yes
Walnut	Pollen (Yes) Nectar (No)	No	No

1-Ornamentals are assumed to be attractive to a wide range of pollinators.

For crop uses where an exposure potential of bees is identified, the next step in the risk assessment process is to conduct a Tier 1 risk assessment. By design, the Tier 1 assessment

relies on conservative (high end) estimates of exposure via contact and oral routes. For contact exposure, only the adult (forager) life stage is considered since this is the relevant life stage for honey bees. Effects are defined by laboratory exposures to groups of individual bees. As discussed in the terrestrial toxicity section, the acute contact toxicity LD₅₀ to adult honey bees is >12.09 µg a.i./bee.

2.5.3 Runoff and spray drift to terrestrial and semi-aquatic plants

Exposure of non-target terrestrial and semi-aquatic (wetland) plant species is estimated using the TerrPlant (v. 1.2.2) model. Loading via spray drift to dry, non-target, adjacent areas is assumed to occur from one acre of treated land to one acre of the non-target area. Runoff is also expected to be a source of pesticide loading to non-target areas. TerrPlant calculates EECs as a function of application rate, solubility, and default assumptions regarding spray drift. The default spray drift assumptions are 1% of the application rate for ground spray applications and 5% for aerial spray applications (USEPA 2006b). The EECs for terrestrial and semi-aquatic plants for a single application of EPTC at the maximum labeled rates for representative uses are presented in Table 19.

Table 19. EECs for terrestrial and semi-aquatic plants near EPTC use areas (TerrPlant v. 1.2.2)

Use ¹	Single Max. Application Rate (lb a.i./A)	EECs (lb a.i./A)				
		Runoff to dry areas	Runoff to semi-aquatic areas	Spray drift	Total for dry areas	Total for semi-aquatic areas
Agricultural Fallow, Idleland, Conservation, Reserve; Corn; Citrus (Mechanical Incorporation); Ornamental (Broadcast)	6.1	0.305	3.05	0.061	0.37	3.11
Alfalfa (Mechanical Incorporation); Clover	4.0	0.20	2.00	0.04	0.24	2.04
Alfalfa Irrigated; Carrot; Potato	3.0	0.15	1.50	0.03	0.18	1.53
Almond; Sugarbeet (Irrigated); Bean, Dry; Citrus (Irrigated); Tomato; Walnut; Sugarbeet (Mechanical Incorporation) (spring application)	3.1	0.155	1.55	0.031	0.186	1.581
Castor Bean; Cotton	2.0	0.10	1.00	0.02	0.12	1.02
Conifer	6.0	0.30	3.00	0.06	0.36	3.06
Ornamental (Mechanical Incorporation)	14.8	0.74	7.40	0.148	0.888	7.548
Safflower; Sugarbeet (Mechanical Incorporation) (fall application)	4.6	0.23	2.30	0.046	0.276	2.346
Sunflower ¹	3.5	0.175	1.75	0.035	0.21	1.785

^{NA} Not applicable.

1- The proposed label indicates three applications are used annually (2 spring applications and 1 fall application).

2.5.4 Atmospheric Concentration and Deposition Analysis (Vapor-Phase EPTC)

Because volatilization is a primary dissipation pathway for EPTC [Vapor Pressure 1.60×10^{-2} mmHg] Henry's Law constant of 1.08×10^{-5} atm·m³/mol (1.09 Pa·m³/mol)] atmospheric concentration and deposition analyses were completed.

The AERSCREEN (v. 16216) model is used to calculate EPTC air concentration as well as wet and dry deposition of EPTC in the environment (<https://www.epa.gov/scram/air-quality-dispersion-modeling-screening-models#aerscreen>). AERSCREEN is a screening model, based on the USEPA AERMOD model, designed to produce estimates of "worst-case" 1-hour concentrations for a single source without the need for hourly meteorological data (USEPA 2011). The single area source is assumed to be the application of EPTC at either an application rate of 2.0 lb a.i./A or 6.1 lb a.i./A. Two application rates were run to bound the potential estimated exposure. EPTC may be applied to ornamentals at a higher rate (14.8 lb a.i./A); however, this application is required to be incorporated to a depth of 15 cm; therefore, it is not expected to result in substantial volatilization. Moreover, applications occurring at 6.1 lb a.i./A are required to be incorporated to 2 cm; as such, the air and deposition concentrations estimated at this rate are expected to be conservative.

The maximum field emission rate (259 g/ha/hr or 0.23 lb /A/hr) was taken from a supplemental field volatility study (MRID 40420404). In this study, a flood-irrigated EPTC application to post-emergent alfalfa at a rate of 3.04 kg/ha (2.7 lb/A) resulted in a maximum vapor flux rate of 18.5 lb/hour. As such, a flux rate of 1.7 g/s (2.0 lb a.i./A) and 5.3 g/s (6.1 lb a.i./A) was used in the AERSCREEN modeling. These rates are scaled to an 80-acre field. Model input values are presented in Table 20. Table 21 provides 24-hour deposition concentrations as well as 1-hour peak average air concentrations of EPTC. Estimated atmospheric half-life of EPTC (*i.e.*, hydroxyl radical degradation) is reflected in the reported results. EPISuite AOPWIN was used to estimate the EPTC degradation by hydroxyl radicals. Examples of input and output of the AERSCREEN model are provided in APPENDIX D.

Table 20. AERSCREEN Inputs for EPTC

Input Parameter	Option/Value
Source Parameters	
Source Type	Area
Maximum Field Emission Rate ^a	1.7 g/s (for 2.0 lb a.i./A) 5.3 g/s (for 6.1 lb a.i./A)
Field Size and Dimensions	80 acres (569 meters x 569 meters)
Height of Release	Bare Soil: 0 cm
Land Surface Parameters	
Local Seasonal Characteristics	1 – Midsummer with lush vegetation
Land Surface Characteristics	2 – Agricultural Lands
Albedo	Bare Soil: 0.2

Input Parameter	Option/Value
Bowen Ratio	Bare Soil: 0.5
Aerodynamic Surface Roughness Length	Bare Soil: 0.05 m
Geochemical and Resistance Parameters	
Diffusion in Air Coefficient ^b	$4.05 \times 10^{-3} \text{ cm}^2/\text{s}$
Diffusion in Water Coefficient ^b	$5.12 \times 10^{-6} \text{ cm}^2/\text{s}$
Bulk Canopy Cuticular Resistance Parameter ^c	$2.29 \times 10^5 \text{ s/cm}$
Henry's Law Constant ^d	$1.47 \text{ Pa}\cdot\text{m}^3/\text{mol}$
Atmospheric Half-Life ^e	16,530 sec 4.592 hr
Meteorological Parameters	
Wind Speed Range	0.5 - 18 m/s
Wind Direction	Along the longest diagonal fetch of field
Hourly Precipitation Amount	2 mm (0.08 inches)
Temperature Range	273K – 311K
Surface Atmospheric Pressure	1013 hPa
Cloud Cover	5/10
Relative Humidity	75%
Output Parameters	
Averaging Period	1-hour
Downwind Distances ^f	0 m – 100 m: Every $10\sqrt{2}$ meters 100 m - 3,000 m: Every $100\sqrt{2}$ meters 3,000 m – 10,000 m: Every $500\sqrt{2}$ meters 10,000 m – 20,000 m Every $5,000\sqrt{2}$ meters
Receptor Height	0 m (Ground-level)
<p>a. Maximum flux rates in field volatility studies scaled to labeled maximum application rate from MRID No. 48862902. Emission rates scaled based on 18.48 lb/hr for 80-acre field at 2.7 lb/A. $259 \text{ g}/\text{ha}/\text{hr} \times 32.38 \text{ ha} \times 1 \text{ kg}/1000 \text{ g} \times 2.2046 \text{ lb/kg} = 18.48 \text{ lb/hr}$ after a 2.68 lb a.i./A post-emergent application to alfalfa. Assuming a linear relationship between flux and application rate an application of 6 lb a.i./A is expected to result in 41.32 lb/hr released of EPTC.</p> <p>b. Diffusion in air coefficient and diffusion in water coefficient for EPTC calculated consistent with EPA Tools found at the Site Assessment Website https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/estdiffusion-ext.html</p> <p>c. Cuticular resistance parameter for EPTC calculated consistent with Section 6.4 of Wesley, 2002 "Deposition Parameters for the Industrial Source Complex (ISC3) Model"</p> <p>d. Henry's Law Constant for EPTC at 25 °C (calculated value)</p> <p>e. Atmospheric half-life of EPTC retrieved from hydroxyl radicals rate constant EpiSuite AOPWIN</p> <p>f. Distances referenced from the center of the treated field. The edge of the field is at a downwind distance of 284.5 meters.</p>	

Table 21. Daily AERSCREEN EPTC Maximum Total Results

Simulation Description	Maximum 1-Hour Air Concentration (mg/m ³)	Maximum 24-Hour Deposition ^a		
		Total Dry Deposition (lb a.i./A)	Total Wet Deposition (lb a.i./A)	Total Deposition (lb a.i./A)
2.0 lb/A; 80A	11.2	0.12	0.05	0.17
6.1 lb/A; 80A	34.2	0.17	0.37	0.51

a. AERSCREEN provides 1-hr deposition; reported values are multiplied by 24 to account for additive fallout from the release and deposition for a 24-hour period. This approach is conservative in that it likely overestimates 24-hr deposition.
Simulation considered estimated degradation in air (*i.e.*, half-life 4.5 hr). Estimated rate of hydroxy radical degradation of EPTC as used in modeling. Atmospheric half-life of EPTC retrieved from hydroxyl radicals rate constant EpiSuite AOPWIN v. 1.92. Atmospheric half-life of EPTC retrieved from hydroxyl radicals rate constant EpiSuite AOPWIN (see APPENDIX D for details).

3.0 Ecological Toxicity

Assessment endpoints represent the actual environmental value that is to be protected, defined by an ecological entity (species, community, or other entity) and its attribute or characteristics (EPA 1998). For EPTC, the ecological entities include the following: birds, reptiles, terrestrial-phase amphibians, mammals, freshwater fish, freshwater aquatic-phase amphibians and invertebrates, estuarine/marine fish and invertebrates, terrestrial plants, insects, aquatic plants, and algae. The attributes for each of these entities include growth, reproduction, and survival.

The ecological effects characterization for EPTC is based upon registrant-submitted toxicity data for the TGAI (parent compound) and for specified formulations. The ecotoxicity data for EPTC and its associated products have been reviewed previously in multiple ecological risk assessments and in the Problem Formulation for Registration Review assessment (USEPA 2013). Various studies with terrestrial plants, birds, and aquatic animals exposed to either the TGAI or formulated EPTC have been received since the Problem Formulation was issued; the results of these studies are described briefly in this section.

3.1 Aquatic Organism

EPTC exposure effects on aquatic organisms were determined by assessing freshwater fish, freshwater invertebrates, marine/estuarine fish, marine/estuarine invertebrates, marine/estuarine mollusks, and aquatic plants. No data are available for the most sensitive freshwater fish or marine/estuarine invertebrates or fish on a chronic basis; acute to chronic ratios (ACRs) were developed where appropriate for these taxa. A brief summary of the individual studies, cited in Table 22, which are representative of the most sensitive endpoints, can be found in the proceeding sections.

Table 22. Most sensitive endpoints for aquatic organisms exposed to EPTC

Assessment Endpoint	Acute/ Chronic	Species Tested	Toxicity Value Used in Risk Assessment	Citation or MRID	Comment
Freshwater fish	Acute	Bluegill sunfish <i>Lepomis macrochirus</i>	96-h LC ₅₀ = 14 mg a.i./L	00144208	Acceptable/Slightly toxic³ NOAEC = 4.2 mg/L; LOAEC = 10 mg/L based on sublethal effects. 100% mortality observed at ≥ 24 mg/L
	Chronic	Bluegill sunfish <i>Lepomis macrochirus</i>	NOAEC = 0.04 mg a.i./L	NOAEC calculated using fathead minnow ACR (320) ¹	--
Freshwater invertebrates	Acute	Water flea <i>Daphnia magna</i>	48-h EC ₅₀ = 6.5 mg a.i./L	42945601	Acceptable/ Moderately toxic³ NOAEC = 1.7 mg/L (mean measured). LOAEC = 3.2 mg/L (nominal) based on immobility.
	Chronic	Water flea <i>D. magna</i>	Reproduction: NOAEC = 0.8 mg a.i./L LOAEC = 1.3 mg a.i./L	45075006	Acceptable Survival: NOAEC = 1.3 mg a.i./L LOAEC = 2.7 mg a.i./L. Growth: NOAEC = 1.3 mg a.i./L LOAEC = 2.7 mg a.i./L
Estuarine/ marine fish	Acute	Sheepshead minnow <i>Cyprinodon variegattis</i>	96-h LC ₅₀ = 17 mg a.i./L	46145903	Acceptable/Slightly Toxic³
	Chronic	Sheepshead minnow <i>Cyprinodon variegattis</i>	NOAEC = 0.05 mg a.i./L	NOAEC calculated using fathead minnow ACR (320) ¹	--
Estuarine/ marine invertebrates	Acute	Eastern oyster <i>Crassostrea Virginica</i>	96-h EC ₅₀ = 1.8 mg a.i./L	46145901	Acceptable/ Moderately Toxic³
		White shrimp <i>Penaeus setiferus</i>	48-h LC ₅₀ = 0.63 mg a.i./L	40228401	Supplemental, but scientifically sound/ Highly Toxic³
	Chronic	White shrimp <i>Penaeus setiferus</i>	NOAEC = 0.08 mg a.i./L	NOAEC calculated using daphnid ACR (8) ²	

Assessment Endpoint	Acute/ Chronic	Species Tested	Toxicity Value Used in Risk Assessment	Citation or MRID	Comment
Aquatic plants	Non-vascular	Green Algae <i>Pseudokirchneriella subcapitata</i>	4-d EC ₅₀ = 1.4 mg a.i./L	42921202 42899801	Acceptable NOAEC = 0.9 mg/L LOAEC = 1.6 mg/L (% inhibition and cell density)
	Vascular	Duckweed <i>Lemna gibba</i>	Biomass: EC ₅₀ = 5.6 mg a.i./L NOAEC = 0.89 mg a.i./L Frond Number EC ₅₀ : 6.7 mg a.i./L NOAEC: 0.29 mg a.i./L	43096001	Acceptable LOAEC (biomass): 2.9 mg a.i./L LOAEC (frond number): 0.89 mg a.i./L

¹ Acute to Chronic Ratio (ACR) from fathead minnow (*Pimephales promelas*) data (acute divided by chronic endpoints, 22.4/0.07 = 320). Acute fathead minnow data from MRID 49595101 (Acceptable) and chronic data from MRID 49595102 (Acceptable).

² Acute to Chronic Ratio (ACR) from daphnid data (acute divided by chronic endpoints, 6.5/0.8 = 8).

³ Based on EC₅₀ (mg/L): < 0.1 very highly toxic; 0.1-1 highly toxic; >1-10 moderately toxic; >10-100 slightly toxic; >100 practically nontoxic

3.1.1 Toxicity to Aquatic Animals

Toxicity from acute exposures to EPTC is similar to freshwater and saltwater fish. While chronic data are not available for the most sensitive freshwater and saltwater species, recently submitted acute and chronic data for the fathead minnow (MRIDs 49595101 and 49595102; Acceptable) can be used to derive an ACR and estimate the chronic toxicity for the most sensitive species. The 96-hr LC₅₀ value for the fathead minnow was 22.4 mg a.i./L, while the 33-day NOAEC was 0.07 mg a.i./L based on a significant decrease in post-hatch survival (35.6% survival at the LOAEC, 0.238 mg a.i./L). Applying this ACR (22.4/0.07 = 320) for the fathead minnow to the bluegill sunfish and sheepshead minnow results in chronic endpoints of 0.04 and 0.05 mg a.i./L, respectively. These values were used to estimate chronic risk to freshwater and saltwater fish.

Available saltwater invertebrate data showed a higher sensitivity than freshwater invertebrates to EPTC acute toxicity. For crustaceans, saltwater shrimp (*Penaeus setiferus*) were an order of magnitude more sensitive than freshwater daphnia (*Daphnia magna*). A daphnid life-cycle study was available to assess the potential chronic risks of EPTC to freshwater invertebrates. An NOAEC of 0.81 mg/L based on a reduction in the number of offspring was established in the study and used to calculate RQs. The 48-hr EC₅₀ was 6.5 mg/L. Similar to the freshwater and saltwater fish described above, an ACR (6.5/0.8 = 8) from daphnid data was applied to the white shrimp acute data, resulting in a chronic endpoint of 0.08 mg a.i./L. This value was used to estimate chronic risk to saltwater invertebrates.

3.1.2 Toxicity to Aquatic Plants

EPTC is somewhat toxic to vascular and nonvascular aquatic plants. Based on the available data, green algae (*P. subcapitata*) is, the most sensitive non-vascular plant species (**Table 23**), with an EC₅₀ of 1.4 mg a.i./L and NOAEC of 0.9 mg a.i./L. The only vascular plant study available showed a duckweed EC₅₀ of 5.6 mg a.i./L and a NOAEC of 0.89 mg a.i./L.

3.2 Terrestrial Organisms

EPTC exposure effects on terrestrial organisms were determined by assessing birds, mammals, invertebrates and terrestrial plants. The most sensitive endpoints, used in risk quantification, have been tabulated in **Table 23**. A brief summary of the individual studies can be found in the proceeding sections.

Table 23. Summary of most sensitive endpoints for terrestrial organisms exposed to EPTC

Toxicity Test	Species	Toxicity Value Used in Risk Assessment	Citation MRID	Comment
Avian Acute Oral	Mallard Duck <i>Anas platyrhynchos</i>	LD ₅₀ > 1000 mg a.i./kg-bw	00131274	Supplemental. No more than slightly toxic ¹ . NOAEL: 1000 mg/kg LOAEL > 1000 mg/kg. Regurgitation was observed in the two highest test concentrations, the NOAEL is based on regurgitation.
Avian Subacute Dietary	Bobwhite Quail <i>Colinus virginianus</i>	LC ₅₀ = 20,000 mg a.i./kg-diet	00021834	Supplemental. Practically non-toxic ¹ . NOAEC: 1800 mg a.i./kg diet LOAEC: 3200 mg a.i./kg diet
Avian Subacute Dietary	Canary <i>Serinus canaria</i>	LC ₅₀ > 4985 mg a.i./kg diet	49595103	Acceptable. Practically non-toxic ¹ . NOAEC: 506 mg a.i./kg diet LOAEC: 869 mg a.i./kg diet Ruffled appearance was observed in the four highest treatment groups, the NOAEC is based on this observance.
Avian Chronic	Mallard Duck <i>Anas platyrhynchos</i>	NOAEC =242 mg a.i./kg diet	46554301	Acceptable. LOAEC: 593 mg a.i./kg diet based on reduction in proportion of viable embryos of eggs set at the 593 and 1490 mg a.i./kg diet levels (13 and 21%, respectively).
Mammalian Acute Oral	Laboratory rat <i>Rattus norvegicus</i>	LD ₅₀ = 1465 (1290-1663) mg/kg - bw (males)	00157868	Acceptable. Slightly toxic ¹ . Acute oral LD ₅₀ : 1712 (1324-2214) mg/kg (F), 1599 (1294-1976) mg/kg (combined).
Mammalian Chronic	Laboratory rat <i>Rattus norvegicus</i>	Parent/ NOAEL: 50 ppm (2.5 mg/kg bw/day)	00161597	Acceptable. NOAEL: 50 ppm (2.5 mg/kg bw/day) Parental LOAEL: 200 ppm (10 mg/kg bw/day) based on decreased weight and increased incidence of

Toxicity Test	Species	Toxicity Value Used in Risk Assessment	Citation MRID	Comment
				cardiomyopathy and renal tube degeneration in the parental generation Offspring/Developmental Toxicity NOAEL: 200 ppm (10 mg/kg bw/day) LOAEL: 800 ppm (40 mg/kg bw/day). Reproductive Toxicity NOAEL: 800 ppm (40 mg/kg bw/day) LOAEL: >800 ppm (40 mg/kg bw/day).
Mammalian Acute Inhalation	Laboratory rat <i>Rattus norvegicus</i>	Acute Inhalation LC ₅₀ Male and Female Combined 1.39 ppm	00157870	NOAEL 0.058 ppm based on myocardial degeneration observed at 21 days in a 90-day inhalation study
Honey bee Acute Contact	<i>Apis mellifera</i>	48-hour contact LD ₅₀ :>12.09 µg a.i./bee	00036935	Acceptable /Practically non-toxic ² .
Terrestrial Plant-Seedling Emergence	Monocot- Ryegrass (<i>Lolium perenne</i>)	NOAEC = 0.28 lb a.i./A IC ₂₅ = 0.174 lb a.i./A	49534201	Acceptable . Based on effects on survival.
	Dicot- Lettuce (<i>Lactuca sativa</i>)	NOAEC = 0.28 lb a.i./A IC ₂₅ = 0.456 lb a.i./A		Acceptable . Based on effects on dry weight.
Terrestrial Plant-Vegetative Vigor	Monocot- Ryegrass (<i>Lolium perenne</i>)	NOAEC = 0.97 lb a.i./A IC ₂₅ = 4.07 lb a.i./A	49564202	Acceptable . Based on effects on dry weight
	Dicot- Soybean (<i>Glycine max</i>)	NOAEC = 2.00 lb a.i./A IC ₂₅ = 6.02 lb a.i./A		Acceptable . Based on effects on dry weight

¹Acute Oral (avian/mammal): Based on LD₅₀ (mg/kg) <10 very highly toxic; 10-50 highly toxic; 51-500 moderately toxic; 501-2000 slightly toxic; >2000 practically nontoxic

² Based on acute contact LD₅₀ (µg a.i./bee) <2 highly toxic; 2-10.99 moderately toxic; ≥11 practically non-toxic

3.2.1 Avian toxicity

EPTC is categorized as practically non-toxic to slightly toxic to birds on acute oral and dietary basis. The available acute oral toxicity tests for the mallard duck and bobwhite quail failed to establish a definitive LD₅₀ (e.g., mallard duck LD₅₀ >1000 mg/kg). A definitive subacute dietary LC₅₀ of 20,000 ppm was established for the bobwhite quail.

In an 8-day subacute dietary toxicity test with canary (*Serinus canaria*), EPTC was administered at nominal concentrations of 0 (negative control), 562, 1000, 1780, 3160, and 5620 mg a.i./kg diet. Mean-measured concentrations were <100 (<LOQ, control), 506, 869, 1575, 2963, and 4985 mg a.i./kg diet. No mortalities were observed in the control group or 506, 869, 1575, and 2963 mg a.i./kg treatment groups throughout the test period. There was 10% (1 of 10) mortality in the 4985 mg a.i./kg treatment group. The LC₅₀ was >4985 mg a.i./kg diet, based on the mean-measured concentrations. During the treatment period, no overt signs of toxicity were observed in the control group and in the 506 mg ai/kg treatment group. However, ruffled appearance, loss of coordination (ataxia), reductions in body weight, and reductions in food consumption were observed sporadically throughout the test at all higher concentrations.

Available chronic avian toxicity information for EPTC reports reproductive effects in both bobwhite quail and mallard ducks. In the mallard duck study, effects including testes size at necropsy; embryo viability; the number of eggs laid, set and hatched; the number of viable embryos; and hatchling survival were observed starting at 593 ppm.

3.2.2 Mammalian Toxicity

Based on the available data, EPTC is categorized as slightly toxic to mammals on an acute exposure basis. Frank reproductive effects were not observed in either of the available 2-generation reproduction rat toxicity studies. However, effects on pups, including decreased body weight during the lactation period, were observed. In addition, effects on the parents, including decreased body weight, degenerative cardiomyopathy, and renal tubule degeneration, were observed at concentrations of 200 mg a.i./kg diet and higher. Based on these observed effects, the NOAEC is 50 mg a.i./kg diet (2.5 mg/kg bw/day) and is used in risk assessment.

3.2.3 Terrestrial Invertebrate toxicity

The 48-hr contact LD₅₀ for terrestrial invertebrates is > 12.09 µg a.i./bee based on 5.91% mortality observed at the highest concentration tested. EPTC is classified as practically non-toxic to adult bees on an acute contact basis. No data are currently available to assess chronic toxicity to adult bees, or acute and chronic toxicity to larval bees.

3.2.4 Terrestrial Plant Toxicity

As described in the EPTC problem formulation (USEPA 2013), previously submitted seedling emergence (MRIDs 42120802 and 43217101) and vegetative vigor (MRID 42120802) studies were deemed insufficient for use in calculating RQs because they failed to measure data on plant height despite the potential for this endpoint to be more sensitive.

Additional seedling emergence (MRID 49534201) and vegetative vigor (MRID 49594202) studies were submitted that are of sufficient quality for use in calculating RQs; however, it is important to note these studies did not test the same suite of species as the previously submitted tests. In the seedling emergence study, the most sensitive monocot species was ryegrass based on survival, with NOAEC and IC₂₅ values of 0.28 and 0.174 lb a.i./A, respectively, and the most sensitive dicot species was lettuce based on dry weight, with NOAEC and IC₂₅ values of 0.28 and 0.456 lb a.i./A, respectively. In the vegetative vigor study, the most sensitive monocot species was ryegrass based on dry weight, with NOAEC and IC₂₅ values of 0.97 and 4.07 lb a.i./A, respectively, and the most sensitive dicot species was soybean based on dry weight, with

NOAEC and IC₂₅ values of 2.00 and 6.02 lb a.i./A, respectively. These values will be used in risk estimation.

Table 24 provides a comparison of the most sensitive monocot and dicot species from the available seedling emergence and vegetative vigor studies. Given that all submitted terrestrial plant studies tested the same EPTC formulation, observed differences in toxicity may be due to differences in sensitivity of tested species. Therefore, all of the available data will be used in risk characterization.

Table 24. Comparison of Most Sensitive Non-Target Terrestrial Plant Seedling Emergence and Vegetative Vigor Toxicity (Tier II) Data

Study	Most Sensitive Species for Use in Risk Estimation (MRIDs 49534201 and 49594202)			Most Sensitive Species for Use in Risk Characterization (MRID 42120802)		
	Most Sensitive Species	NOAEC [EC ₀₅] (lb a.i./A)	EC ₂₅ (lb a.i./A)	Most Sensitive Species	NOAEC [EC ₀₅] (lb a.i./A)	EC ₂₅ (lb a.i./A)
Seedling Emergence						
Monocot	Ryegrass (<i>Lolium perenne</i>)	0.28	0.174	Purple nutsedge (<i>Cyperus rotundus</i>)	0.0144	0.015
Dicot	Lettuce (<i>Lactuca sativa</i>)	0.28	0.456	Morning glory (<i>Ipomea hederacea</i>)	[0.035]	0.26
Vegetative Vigor						
Monocot	Ryegrass (<i>Lolium perenne</i>)	0.97	4.07	Winter wheat (<i>Triticum aestivum</i>)	[0.087]	0.22
Dicot	Soybean (<i>Glycine max</i>)	2.00	6.02	Velvet leaf (<i>Abutilon theophrasti</i>)	[0.085]	2.0

3.3 Incident Data

The Incident Data System (IDS), which is maintained by the Agency's Office of Pesticide Programs, was searched to determine if ecological incidents have been reported for EPTC. Based on a search of IDS conducted in January 2017 there were three reported EPTC incidents affecting standing dry bean, alfalfa, and potato crops from direct applications, and impacting as much as 2000 acres. There was also one additional incident caused by runoff following an application of EPTC and four other active ingredients (phorate, atrazine, propachlor and 2,4-D) to corn. This incident resulted in a fish kill totaling 30 bluegills and 20 bass. The incident report

(ID: B000150-001) assigned a certainty level of “highly probable” to phorate, suggesting that one of these active ingredients was the likely the primary stressor causing the fish kill. A certainty index of “possible” was assigned to EPTC, suggesting that it was not the primary cause but was a possible contributing factor.

The Aggregate Incident System was also queried in March 2017 for ecological incidents attributed to products containing EPTC. This database contains reports of minor wildlife and plant damage incidents that the pesticide registrant reported in aggregated reports. There are 21 reported minor plant damage incidents and 2 reported minor wildlife incidents in this database.

Because of limitations in the incident reporting system, the lack of additional incident reports cannot be construed as the absence of incidents from the registered use of EPTC.

4.0 Risk Characterization

As discussed in the problem formulation, risk characterization integrates EECs and toxicity estimates and evaluates the potential for adverse ecological effects to non-target species. For EPTC, a deterministic approach is used to evaluate the potential for adverse ecological effects to non-target species. In this approach, RQs are calculated by dividing EECs by acute and chronic ecotoxicity values for non-target species.

$$\text{Risk Quotient (RQ)} = \text{Exposure Estimate}/\text{Toxicity Estimate}$$

The RQ value is a unitless number and for this reason, the magnitude of the RQ value cannot be used to quantitatively gauge the potential for or magnitude of an adverse effect resulting from exposure to EPTC. Rather, the resulting RQ values are compared to LOCs (Table 25) which serve as thresholds above which exposure from the labeled use (or proposed use) of the pesticide is considered to have the potential to cause adverse effects for the non-target organisms/taxa for which the value is intended to represent. The LOCs currently address the following risk presumption categories:

Animals:

- **Acute risk**—potential for acute risk to non-target organisms which may warrant regulatory action in addition to restricted classification
- **Acute risk, listed species**—listed species may be potentially affected by use
- **Chronic risk**—potential for chronic risk may warrant regulatory action, listed species may potentially be affected through chronic exposure

Plants:

- **Non-listed plant risk**—potential for effects in non-target (non-endangered) plants
- **Listed plant risk**—potential for effects in endangered plants

Table 25. Agency Risk Quotient (RQ) Metrics and Levels of Concern (LOC) Per Risk Class

Risk Class	Risk Description	RQ	LOC
Aquatic Animals (fish and invertebrates)			
Acute Risk to non-listed Species	Potential for effects to non-listed animals from acute exposures	Peak EEC/LC ₅₀	0.5
Acute Risk to Listed Species	Listed species may be potentially affected by acute exposures	Peak EEC/LC ₅₀	0.05
Chronic	Potential for effects to non-listed and listed animals from chronic exposures	60-day EEC/NOAEC (fish)	1
		21-day EEC/NOAEC (invertebrates)	
Aquatic Plants			
Non-Listed	Potential for effects to non-listed plants from exposures	Peak EEC/LC ₅₀	1
Listed	Potential for effects to listed plants from exposures	Peak EEC/NOAEC	1
Terrestrial Animals (mammals and birds)¹			
Acute Risk to non-listed Species	Potential for effects to non-listed animals from acute exposures	EEC/LC ₅₀ (Dietary)	0.5
		EEC/LD ₅₀ (Dose)	
Acute Risk to Listed Species	Listed species may be potentially affected by acute exposures	EEC/LC ₅₀ (Dietary)	0.1
		EEC/LD ₅₀ (Dose)	
Chronic Risk	Potential for effects to non-listed and listed animals from chronic exposures	EEC/NOAEC	1
Terrestrial Arthropods			
Acute risk to bees	Potential for effects to bees from acute exposures	EEC/LD ₅₀ (Dose)	0.4
Terrestrial and Semi-Aquatic Plants			
Non-Listed	Potential for effects to non-target, non-listed plants from exposures	EEC/ EC ₂₅	1
Listed Plant	Potential for effects to non-target, listed plants from exposures	EEC/ NOAEC	1
		EEC/ EC ₀₅	

¹ Birds serve as surrogates for assessing risk to reptiles and terrestrial phases of amphibians.

The resulting RQ values are compared to the Agency's LOCs, as shown in **Table 26** through **Table 35**. The LOCs are used by the Agency to indicate when the use of a pesticide, as directed by the label, has the potential to cause adverse effects to non-target organisms. In this assessment, RQs that exceed the non-listed species LOC also exceed the listed species LOC.

Note that with plants, unlike with animals, RQ values are not presented for acute versus chronic risk; instead, RQ values are presented for listed and non-listed species based on a comparison of a given EEC to NOAEL and EC₂₅/EC₅₀ values, respectively. A discussion of the RQ values for

EPTC and of other information that provides context for the interpretation of potential risk to various taxa is presented in the Risk Description in **Section 4.3**.

4.1 Risk Estimation for Aquatic Organisms

The following sections provide RQ tables for the maximum exposure scenarios developed to assess the labeled uses of EPTC. Complete RQ tables for all scenarios can be found in **Appendix F**.

4.1.1 Freshwater Fish

Acute risk to freshwater fish and aquatic-phase amphibians is based on 1 in 10 year peak EECs in the standard pond and the lowest acute toxicity value for freshwater fish. Chronic risk is based on the 1 in 10 year 60-day EECs and the ACR developed based on the available acute and chronic fathead minnow data. Acute and chronic risk quotients for freshwater fish exposed to EPTC from spray formulations are shown in **Table 26**.

The scenario resulting in the highest peak exposure values was indicated for ornamental mechanical incorporation applications. As the most sensitive acute freshwater fish endpoint (EC_{50} 14000 µg a.i./L) is multiple orders of magnitude higher than the highest peak EECs (52.40 µg a.i./L) for each of the modeled scenarios, all resultant RQs were well below the acute LOCs; the maximum acute RQ was 0.01. While the chronic toxicity endpoint (NOAEC = 40 µg a.i./L) suggests that freshwater fish are more sensitive to EPTC exposure on a chronic basis, all RQs are below the LOC of 1.0 (highest RQ = 0.49).

RQs for granular applications of EPTC are provided in **Table 27**. As with the spray formulations, all of the RQs are well below the LOC for acute (<0.01) and chronic exposure (highest RQ = 0.15).

Based on the results of this risk estimation, risk is not expected to freshwater fish on an acute or chronic basis.

Table 26. Acute and Chronic RQs for direct effects to freshwater fish resulting from exposure to EPTC- Spray formulation¹

Use(s)	Scenario	Peak EECs (µg a.i./L)	Freshwater Fish EC_{50} = 14000 µg a.i./L	60-day EECs (µg a.i./L)	Freshwater Fish NOAEC = 40 µg a.i./L
			Acute RQ		Chronic RQ
Agr_Fallow	RangeBSS_+0	21.00	<0.01	6.67	0.17
Alfalfa	TXalfalfaOP_+0	22.00	<0.01	11.50	0.29
Almond	CAalmond_WirrigSTD_+0	15.20	<0.01	7.92	0.20
Carrot	FLcarrotSTD_+0	33.20	<0.01	14.70	0.37

Use(s)	Scenario	Peak EECs ($\mu\text{g a.i./L}$)	Freshwater Fish $\text{EC}_{50} = 14000 \mu\text{g a.i./L}$	60-day EECs ($\mu\text{g a.i./L}$)	Freshwater Fish NOAEC = 40 $\mu\text{g a.i./L}$
			Acute RQ		Chronic RQ
Castor Bean	ILbeansNMC_+0	15.90	<0.01	9.90	0.25
Citrus	FLcitrusSTD_+0	23.60	<0.01	9.16	0.23
Clover	NCalfalfaOP_+0	15.00	<0.01	4.96	0.12
Conifer	NurseryBSS_V2_+0	31.60	<0.01	11.00	0.28
Corn	MScornSTD_+0	37.20	<0.01	14.30	0.36
Cotton	MScottonSTD_+0	15.30	<0.01	6.07	0.15
Dry Bean	ILbeansNMC_+0	27.40	<0.01	12.30	0.31
Ornamental	FLnurserySTD_V2_+0	52.40	<0.01	17.80	0.45
Potato	MEpotatoSTD_+0	51.70	<0.01	19.60	0.49
Safflower	TXwheatOP_+0	18.20	<0.01	7.38	0.18
Sugarbeet	MNsugarbeetSTD_+0	16.20	<0.01	5.57	0.14
Sunflower	TXwheatOP_+0	21.90	<0.01	8.68	0.22
Tomato	FLtomatoSTD_V2_+0	11.10	<0.01	5.43	0.14
Walnut	CAalmond_WirrigSTD_+0	11.10	<0.01	3.54	0.09

Bolded cells indicate an exceedance of listed and non-listed LOC.

* Indicates an exceedance of listed LOC only.

¹Acute listed species LOC = 0.05; acute non-listed LOC = 0.5; chronic risk LOC = 1

Table 27. Acute and Chronic RQs for direct effects to freshwater fish resulting from exposure to EPTC- Granular formulation¹

Use(s)	Scenario	Peak EECs ($\mu\text{g a.i./L}$)	Freshwater Fish $\text{EC}_{50} = 14000 \mu\text{g a.i./L}$	60-day EECs ($\mu\text{g a.i./L}$)	Freshwater Fish NOAEC = 40 $\mu\text{g a.i./L}$
			Acute RQ		Chronic RQ
Agr_Fallow	RangeBSS_+0	1.18	<0.01	0.34	<0.01
Alfalfa	TXalfalfaOP_+0	6.21	<0.01	1.99	0.05
Bean	ILbeansNMC_+0	8.44	<0.01	2.86	0.07
Citrus	FLcitrusSTD_+0	8.10	<0.01	2.99	0.07
Conifers	NurseryBSS_V2_+0	16.50	<0.01	4.92	0.12
Corn	MScornSTD_+0	15.70	<0.01	6.13	0.15
Dry-Beans	ILbeansNMC_+0	11.40	<0.01	3.95	0.10
Potato	MEpotatoSTD_+0	17.30	<0.01	6.19	0.15
Safflower	TXwheatOP_+0	1.23	<0.01	0.58	0.01
Sugarbeet	MNsugarbeetSTD_+0	0.62	<0.01	0.31	<0.01
Sunflower	TXwheatOP_+0	1.68	<0.01	0.31	<0.01

Bolded cells indicate an exceedance of listed and non-listed LOC.

* Indicates an exceedance of listed LOC only.

¹Acute listed species LOC = 0.05; acute non-listed LOC = 0.5; chronic risk LOC = 1

4.1.2 Freshwater Invertebrates

Acute risk to freshwater invertebrates is based on 1 in 10 year peak EECs in the standard pond and the lowest acute toxicity value for freshwater invertebrates. Chronic risk is based on the 1 in 10 year 21-day EEC and the lowest chronic toxicity value for freshwater invertebrates. Acute and chronic risk quotients for freshwater invertebrates exposed to EPTC from spray formulations are shown in **Table 28**.

Similar to that of the freshwater fish presented above, the most sensitive acute freshwater invertebrate toxicity endpoint ($EC_{50} = 6500 \mu\text{g a.i./L}$) is multiple orders of magnitude higher than the peak EECs ($52.40 \mu\text{g a.i./L}$) for each of the modeled scenarios, and therefore all resultant RQs were below the acute LOCs; the maximum RQ was 0.01. The chronic freshwater invertebrate toxicity endpoint for freshwater invertebrates ($NOAEC = 800 \mu\text{g a.i./L}$) is also significantly higher than the highest 21-day average EEC ($34 \mu\text{g a.i./L}$) and, therefore, all chronic RQs were below the chronic LOC of 1.0; the maximum chronic RQ was 0.04.

RQs for granular applications of EPTC are provided in **Table 29**. As with the spray formulations, all of the RQs are well below the LOC for acute (maximum RQ <0.01) and chronic (maximum RQ 0.01) exposure.

Based on the results of this risk estimation, risk to freshwater invertebrates is not expected to freshwater invertebrates on an acute or chronic basis.

Table 28. Acute and chronic RQs for direct effects to freshwater invertebrates resulting from exposure to EPTC- Spray formulations¹

Use(s)	Scenario	Peak EECs ($\mu\text{g a.i./L}$)	Freshwater Invertebrates $EC_{50} = 6500 \mu\text{g a.i./L}$	21-day EECs ($\mu\text{g a.i./L}$)	Freshwater Invertebrates $NOAEC = 800 \mu\text{g a.i./L}$
			Acute RQ		Chronic RQ
Agr_Fallow	RangeBSS_+0	21.00	<0.01	13.40	0.02
Alfalfa	TXalfalfaOP_+0	22.00	<0.01	14.70	0.02
Almond	CAalmond_WirrigSTD_+0	15.20	<0.01	10.40	0.01
Carrot	FLcarrotSTD_+0	33.20	<0.01	22.20	0.03
Castor Bean	ILbeansNMC_+0	15.90	<0.01	11.70	0.01
Citrus	FLcitrusSTD_+0	23.60	<0.01	15.90	0.02
Clover	NCalalfaOP_+0	15.00	<0.01	9.36	0.01
Conifer	NurseryBSS_V2_+0	31.60	<0.01	20.40	0.03
Corn	MScornSTD_+0	37.20	<0.01	24.40	0.03
Cotton	MSCottonSTD_+0	15.30	<0.01	11.00	0.01
Dry Bean	ILbeansNMC_+0	27.40	<0.01	19.10	0.02
Ornamental	FLnurserySTD_V2_+0	52.40	<0.01	34.00	0.04
Potato	MEpotatoSTD_+0	51.70	<0.01	33.20	0.04
Safflower	TXwheatOP_+0	18.20	<0.01	11.50	0.01

Use(s)	Scenario	Peak EECs (µg a.i./L)	Freshwater Invertebrates $EC_{50} = 6500 \mu\text{g a.i./L}$	21-day EECs (µg a.i./L)	Freshwater Invertebrates NOAEC = 800 µg a.i./L
			Acute RQ		Chronic RQ
Sugarbeet	MNsugarbeetSTD_+0	16.20	<0.01	9.83	0.01
Sunflower	TXwheatOP_+0	21.90	<0.01	14.60	0.02
Tomato	FLtomatoSTD_V2_+0	11.10	<0.01	8.61	0.01
Walnut	CAalmond_WirrigSTD_+0	11.10	<0.01	6.98	<0.01

Bolded cells indicate an exceedance of listed and non-listed LOC.

* Indicates an exceedance of listed LOC only.

¹ Acute listed species LOC = 0.05; acute non-listed LOC = 0.5; chronic risk LOC = 1

Table 29. Acute and Chronic RQs for direct effects to freshwater invertebrates resulting from exposure to EPTC- Granular formulation¹

Use(s)	Scenario	Peak EECs (µg a.i./L)	Freshwater Fish $EC_{50} = 6500 \mu\text{g a.i./L}$	60-day EECs (µg a.i./L)	Freshwater Fish NOAEC = 800 µg a.i./L
			Acute RQ		Chronic RQ
Agr_Fallow	RangeBSS_+0	1.18	<0.01	0.73	<0.01
Alfalfa	TXalfalfaOP_+0	6.21	<0.01	3.76	<0.01
Bean	ILbeansNMC_+0	8.44	<0.01	5.45	<0.01
Citrus	FLcitrusSTD_+0	8.10	<0.01	5.59	<0.01
Conifers	NurseryBSS_V2_+0	16.50	<0.01	9.88	0.01
Corn	MScornSTD_+0	15.70	<0.01	10.70	0.01
Dry-Beans	ILbeansNMC_+0	11.40	<0.01	7.58	<0.01
Potato	MEpotatoSTD_+0	17.30	<0.01	9.92	0.01
Safflower	TXwheatOP_+0	1.23	<0.01	0.90	<0.01
Sugarbeet	MNsugarbeetSTD_+0	0.62	<0.01	0.38	<0.01
Sunflower	TXwheatOP_+0	1.68	<0.01	0.63	<0.01

Bolded cells indicate an exceedance of listed and non-listed LOC.

* Indicates an exceedance of listed LOC only.

¹ Acute listed species LOC = 0.05; acute non-listed LOC = 0.5; chronic risk LOC = 1

4.1.3 Estuarine/marine Fish

Acute risk to estuarine/marine fish is based on 1 in 10 year peak EECs in the standard pond and the lowest acute toxicity value for estuarine/marine fish. Chronic risk is based on the 1 in 10 year 60-day EECs and the ACR developed based on the available acute and chronic fathead minnow data. Acute and chronic risk quotients for estuarine/marine fish exposed to EPTC from spray formulations are shown in **Table 30**.

As was the case for acute toxicity to freshwater fish, the most sensitive acute toxicity endpoint for estuarine/marine fish ($EC_{50} = 17000 \mu\text{g a.i./L}$) was multiple orders of magnitude above the highest peak EEC values ($52.40 \mu\text{g a.i./L}$) from all uses modeled and therefore all acute RQs were below all acute LOCs (all RQs < 0.01). While the chronic toxicity endpoint (NOAEC = $50 \mu\text{g a.i./L}$) suggests that estuarine/marine fish are more sensitive to EPTC exposure on a chronic basis, all RQs are below the LOC (maximum RQ = 0.39).

RQs for granular applications of EPTC are provided in

Table 31. As with the spray formulations, all of the RQs are well below the LOC for acute (<0.01) and chronic (0.12) exposures.

Based on the results of this risk estimation, risk is not expected to freshwater fish on an acute and chronic basis.

Table 30. Acute and chronic RQs for direct effects to estuarine/marine fish resulting from exposure to EPTC- Spray formulations¹

Use(s)	Scenario	Peak EECs ($\mu\text{g a.i./L}$)	Freshwater Invertebrates $\text{EC}_{50} = 17000 \mu\text{g a.i./L}$	21-day EECs ($\mu\text{g a.i./L}$)	Freshwater Invertebrates $\text{NOAEC} = 50 \mu\text{g a.i./L}$
			Acute RQ		Chronic RQ
Agr_Fallow	RangeBSS_+0	21.00	<0.01	6.67	0.13
Alfalfa	TXalfalfaOP_+0	22.00	<0.01	11.50	0.23
Almond	CAalmond_WirrigSTD_+0	15.20	<0.01	7.92	0.16
Carrot	FLcarrotSTD_+0	33.20	<0.01	14.70	0.29
Castor Bean	ILbeansNMC_+0	15.90	<0.01	9.90	0.20
Citrus	FLcitrusSTD_+0	23.60	<0.01	9.16	0.18
Clover	NCalalfaOP_+0	15.00	<0.01	4.96	0.10
Conifer	NurseryBSS_V2_+0	31.60	<0.01	11.00	0.22
Corn	MScornSTD_+0	37.20	<0.01	14.30	0.29
Cotton	MScottonSTD_+0	15.30	<0.01	6.07	0.12
Dry Bean	ILbeansNMC_+0	27.40	<0.01	12.30	0.25
Ornamental	FLnurserySTD_V2_+0	52.40	<0.01	17.80	0.36
Potato	MEpotatoSTD_+0	51.70	<0.01	19.60	0.39
Safflower	TXwheatOP_+0	18.20	<0.01	7.38	0.15
Sugarbeet	MNsugarbeetSTD_+0	16.20	<0.01	5.57	0.11
Sunflower	TXwheatOP_+0	21.90	<0.01	8.68	0.17
Tomato	FLtomatoSTD_V2_+0	11.10	<0.01	5.43	0.11
Walnut	CAalmond_WirrigSTD_+0	11.10	<0.01	3.54	0.07

Bolded cells indicate an exceedance of listed and non-listed LOC.

* Indicates an exceedance of listed LOC only.

¹ Acute listed species LOC = 0.05; acute non-listed LOC = 0.5; chronic risk LOC = 1

Table 31. Acute and Chronic RQs for direct effects to estuarine/marine fish resulting from exposure to EPTC- Granular formulation¹

Use(s)	Scenario	Peak EECs (µg a.i./L)	Freshwater Fish EC ₅₀ = 17000 µg a.i./L	60-day EECs (µg a.i./L)	Freshwater Fish NOAEC = 50 µg a.i./L
			Acute RQ		Chronic RQ
Agr_Fallow	RangeBSS_+0	1.18	<0.01	0.34	<0.01
Alfalfa	TXalfalfaOP_+0	6.21	<0.01	1.99	0.04
Bean	ILbeansNMC_+0	8.44	<0.01	2.86	0.06
Citrus	FLcitrusSTD_+0	8.10	<0.01	2.99	0.06
Conifers	NurseryBSS_V2_+0	16.50	<0.01	4.92	0.10
Corn	MScornSTD_+0	15.70	<0.01	6.13	0.12
Dry-Beans	ILbeansNMC_+0	11.40	<0.01	3.95	0.08
Potato	MEpotatoSTD_+0	17.30	<0.01	6.19	0.12
Safflower	TXwheatOP_+0	1.23	<0.01	0.58	0.01
Sugarbeet	MNsugarbeetSTD_+0	0.62	<0.01	0.31	<0.01
Sunflower	TXwheatOP_+0	1.68	<0.01	0.31	<0.01

Bolded cells indicate an exceedance of listed and non-listed LOC.

* Indicates an exceedance of listed LOC only.

¹Acute listed species LOC = 0.05; acute non-listed LOC = 0.5; chronic risk LOC = 1

4.1.4 Estuarine/marine Invertebrates

Acute risk to estuarine/marine invertebrates is based on 1 in 10 year peak EECs in the standard pond and the lowest acute toxicity value for estuarine/marine invertebrates. Chronic risk is based on the 1 in 10 year 60-day EECs and the ACR developed based on the available acute and chronic daphnid data. Acute and chronic risk quotients for estuarine/marine fish exposed to EPTC from spray formulations are shown in **Table 32**.

The acute toxicity value (EC₅₀ = 630 µg a.i./L) suggests that estuarine/marine invertebrate are more sensitive to EPTC on an acute basis, and, unlike freshwater invertebrates, RQs exceed the listed species LOC for uses on carrot, conifer, corn, ornamentals and potato. Acute RQs range from 0.02 to 0.08. The RQs that exceed the LOC only do so marginally and only when the model scenarios with the greatest predicted exposure is used. For chronic exposure, RQs do not exceed the LOC of 1.0 and range from 0.09 to 0.43.

RQs for granular applications of EPTC are provided in **Table 33**. As with the spray formulations, acute RQs narrowly exceed the listed species LOC for uses on corn and potato. Acute RQs range from < 0.01 to 0.03. For chronic exposure, RQs do not exceed the LOC of 1.0 and range from <0.01 to 0.12.

Table 32. Acute and chronic RQs for direct effects to estuarine/marine invertebrates resulting from exposure to EPTC- Spray formulations¹

Use(s)	Scenario	Peak EECs (µg a.i./L)	Freshwater Invertebrates $EC_{50} = 630 \mu\text{g a.i./L}$	21-day EECs (µg a.i./L)	Freshwater Invertebrates NOAEC = 80 µg a.i./L
			Acute RQ		Chronic RQ
Agr_Fallow	RangeBSS_+0	21.00	0.03	13.40	0.17
Alfalfa	TXalfalfaOP_+0	22.00	0.03	14.70	0.18
Almond	CAalmond_WirrigSTD_+0	15.20	0.02	10.40	0.13
Carrot	FLcarrotSTD_+0	33.20	0.05*	22.20	0.28
Castor Bean	ILbeansNMC_+0	15.90	0.03	11.70	0.15
Citrus	FLcitrusSTD_+0	23.60	0.04	15.90	0.20
Clover	NCalalfaOP_+0	15.00	0.02	9.36	0.12
Conifer	NurseryBSS_V2_+0	31.60	0.05*	20.40	0.26
Corn	MScornSTD_+0	37.20	0.06*	24.40	0.31
Cotton	MScottonSTD_+0	15.30	0.02	11.00	0.14
Dry Bean	ILbeansNMC_+0	27.40	0.04	19.10	0.24
Ornamental	FLnurserySTD_V2_+0	52.40	0.08*	34.00	0.43
Potato	MEpotatoSTD_+0	51.70	0.08*	33.20	0.42
Safflower	TXwheatOP_+0	18.20	0.03	11.50	0.14
Sugarbeet	MNsugarbeetSTD_+0	16.20	0.03	9.83	0.12
Sunflower	TXwheatOP_+0	21.90	0.03	14.60	0.18
Tomato	FLtomatoSTD_V2_+0	11.10	0.02	8.61	0.11
Walnut	CAalmond_WirrigSTD_+0	11.10	0.02	6.98	0.09
Bolded cells indicate an exceedance of listed and non-listed LOC.					
* Indicates an exceedance of listed LOC only.					
¹ Acute listed species LOC = 0.05; acute non-listed LOC = 0.5; chronic risk LOC = 1					

Table 33. Acute and Chronic RQs for direct effects to estuarine/marine invertebrates resulting from exposure to EPTC- Granular formulation¹

Use(s)	Scenario	Peak EECs (µg a.i./L)	Freshwater Fish $EC_{50} = 630 \mu\text{g a.i./L}$	60-day EECs (µg a.i./L)	Freshwater Fish NOAEC = 80 µg a.i./L
			Acute RQ		Chronic RQ
Agr_Fallow	RangeBSS_+0	1.18	<0.01	0.73	<0.01
Alfalfa	TXalfalfaOP_+0	6.21	<0.01	3.76	0.05
Bean	ILbeansNMC_+0	8.44	0.01	5.45	0.07
Citrus	FLcitrusSTD_+0	8.10	0.01	5.59	0.07
Conifers	NurseryBSS_V2_+0	16.50	0.03	9.88	0.12
Corn	MScornSTD_+0	15.70	0.02	10.70	0.13
Dry-Beans	ILbeansNMC_+0	11.40	0.02	7.58	0.09

Use(s)	Scenario	Peak EECs ($\mu\text{g a.i./L}$)	Freshwater Fish $\text{EC}_{50} = 630 \mu\text{g a.i./L}$	60-day EECs ($\mu\text{g a.i./L}$)	Freshwater Fish $\text{NOAEC} = 80 \mu\text{g a.i./L}$
			Acute RQ		Chronic RQ
Potato	MEpotatoSTD_+0	17.30	0.03	9.92	0.12
Safflower	TXwheatOP_+0	1.23	<0.01	0.90	0.01
Sugarbeet	MNsugarbeetSTD_+0	0.62	<0.01	0.38	<0.01
Sunflower	NDwheatSTD_+0	0.61	<0.01	0.33	<0.01

Bolded cells indicate an exceedance of listed and non-listed LOC.

* Indicates an exceedance of listed LOC only.

¹Acute listed species LOC = 0.05; acute non-listed LOC = 0.5; chronic risk LOC = 1

4.1.5 Aquatic Plants

Risk to aquatic non-vascular plants is based on 1 in 10 year peak EECs in the standard pond and the lowest EC₅₀ value and NOAEC value. Listed species RQs are derived from a comparison of the peak EEC to the most sensitive NOAEC and non-listed RQs are derived from a comparison of the peak EEC to the most sensitive EC₅₀ value available. Based on the modeled EECs and most sensitive toxicity endpoints for aquatic plants species, there were no RQ exceedances for listed or non-listed aquatic vascular or nonvascular plant species. The results have been tabulated in **Table 34** for spray formulations and **Table 35** for granular formulations.

Table 34. RQ Values for direct effects to aquatic vascular and nonvascular plants resulting from exposure to EPTC- Spray formulations¹

Use(s)	Scenario	Peak EECs ($\mu\text{g a.i./L}$)	Aquatic Nonvascular Plants $\text{EC}_{50} = 1400 \mu\text{g a.i./L}$ $\text{NOAEC} = 900 \mu\text{g a.i./L}$		Aquatic Vascular Plants $\text{EC}_{50} = 5600 \mu\text{g a.i./L}$ $\text{NOAEL} = 890 \mu\text{g a.i./L}$	
			Listed RQs	Non-listed RQs	Listed RQs	Non-listed RQs
Agr_Fallow	RangeBSS_+0	21.00	0.02	0.02	0.02	<0.01
Alfalfa	TXalfalfaOP_+0	22.00	0.02	0.02	0.02	<0.01
Almond	CAalmond_WirrigSTD_+0	15.20	0.02	0.01	0.02	<0.01
Carrot	FLcarrotSTD_+0	33.20	0.04	0.02	0.04	<0.01
Castor Bean	ILbeansNMC_+0	15.90	0.02	0.01	0.02	<0.01
Citrus	FLcitrusSTD_+0	23.60	0.03	0.02	0.03	<0.01
Clover	NCalalfaOP_+0	15.00	0.02	0.01	0.02	<0.01
Conifer	NurseryBSS_V2_+0	31.60	0.04	0.02	0.04	<0.01
Corn	MScornSTD_+0	37.20	0.04	0.03	0.04	<0.01
Cotton	MScottonSTD_+0	15.30	0.02	0.01	0.02	<0.01
Dry Bean	ILbeansNMC_+0	27.40	0.03	0.02	0.03	<0.01

Use(s)	Scenario	Peak EECs (μg a.i./L)	Aquatic Nonvascular Plants		Aquatic Vascular Plants	
			Listed RQs	Non-listed RQs	Listed RQs	Non-listed RQs
Ornamental	FLnurserySTD_V2_+0	52.40	0.06	0.04	0.06	<0.01
Potato	MEpotatoSTD_+0	51.70	0.06	0.04	0.06	<0.01
Safflower	TXwheatOP_+0	18.20	0.02	0.01	0.02	<0.01
Sugarbeet	MNsugarbeetSTD_+0	16.20	0.02	0.01	0.02	<0.01
Sunflower	TXwheatOP_+0	21.90	0.02	0.02	0.02	<0.01
Tomato	FLtomatoSTD_V2_+0	11.10	0.01	<0.01	0.01	<0.01
Walnut	CAalmond_WirrigSTD_+0	11.10	0.01	<0.01	0.01	<0.01

¹Listed aquatic plant LOC = 1; Non-listed aquatic plant LOC = 1

Table 35. RQ Values for direct effects to aquatic vascular and nonvascular plants resulting from exposure to EPTC- Granular formulations¹

Use(s)	Scenario	Peak EECs (μg a.i./L)	Aquatic Nonvascular Plants		Aquatic Vascular Plants	
			Listed RQs	Non-listed RQs	Listed RQs	Non-listed RQs
Ag_Fallow	RangeBSS_+0	1.18	<0.01	<0.01	<0.01	<0.01
Alfalfa	TXalfalfaOP_+0	6.21	<0.01	<0.01	<0.01	<0.01
Bean	ILbeansNMC_+0	8.44	<0.01	<0.01	<0.01	<0.01
Citrus	FLcitrusSTD_+0	8.10	<0.01	<0.01	<0.01	<0.01
Conifers	NurseryBSS_V2_+0	16.50	0.02	0.01	0.02	<0.01
Corn	MScornSTD_+0	15.70	0.02	0.01	0.02	<0.01
Dry Bean	ILbeansNMC_+0	11.40	0.01	<0.01	0.01	<0.01
Potato	MEpotatoSTD_+0	17.30	0.02	0.01	0.02	<0.01
Safflower	TXwheatOP_+0	1.23	<0.01	<0.01	<0.01	<0.01
Sugarbeet	MNsugarbeetSTD_+0	0.62	<0.01	<0.01	<0.01	<0.01
Sunflower	TXwheatOP_+0	1.68	<0.01	<0.01	<0.01	<0.01

¹Listed aquatic plant LOC = 1; Non-listed aquatic plant LOC = 1

4.2 Risk Estimation for Terrestrial Organisms

4.2.1 Risk to Birds

As previously discussed in **Section 2.5.1** potential direct effects to terrestrial species are based on spray and granular uses of EPTC. Potential risks to birds and, thus, terrestrial-phase amphibians and reptiles are evaluated using T-REX, acute and chronic toxicity data for the most sensitive bird species for which data are available, and the most sensitive dietary item and size class for that species.

The acute and chronic dose-based and dietary-based RQs for birds are tabulated below in Table 36, Table 37, and Table 38, respectively.

Acute dose based risk to birds

A definitive LD₅₀ value has not been established for birds. In order to gain a better understanding of how the EECs for the maximum labeled EPTC application rates relate to the toxicity data currently available for birds, the T-REX model is used to calculate a ratio of the EEC and toxicity endpoint using the conservative assumption that the highest value tested represents the toxicity endpoint. **Table 36** provides the ratio of the EEC and toxicity endpoint (labeled RQs for simplicity) for the labeled uses of EPTC. In this exercise, some of the acute ratios calculated are > 1, especially for small and medium birds that consume short grass, tall grass, broadleaf plants, and arthropods. Because highest predicted exposure level is above the highest test level, the specific risk to birds from the use of EPTC is unknown. In cases when the ratio is well above 1, such as for exposure to short grass with use on ornamental plants and potatoes, acute risk cannot be precluded. However, in cases when the ratio is only slightly above 1, the EEC is only slightly above the highest test dose at which caused no adverse effects, and thus risk is unlikely.

Table 36. Acute dose-based RQ values for birds exposed to EPTC – Spray Formulations (T-REX v. 1.5.2)^{1,2}

Primary Feeding Strategy →	Animal Size →	Herbivores and Omnivores						Insectivores			Granivores							
		Sm	Med	Tall Grass	Short Grass	Fruits, pods, seeds, etc.	Broadleaf Plants	Gr	Sm	Med	Lg	Sm	Med	Lg				
Dietary Items →	Use(s) ↓	Short Grass	Tall Grass	Short Grass	Fruits, pods, seeds, etc.	Broadleaf Plants	Fruits, pods, seeds, etc.	Tall Grass	Short Grass	Fruits, pods, seeds, etc.	Broadleaf Plants	Fruits, pods, seeds, etc.	Arthropods	Seeds, grains, etc.				
Agricultural Fallow, Idleland, Conservation, Reserve; Corn; Citrus (Mechanical Incorporation); Ornamental (Broadcast); Potato	3.21	1.47	1.81	0.20*	1.44	0.66	0.81	0.09	0.46*	0.21*	0.26*	0.03	1.26	0.56	0.18*	0.04	0.02	0.01
Alfalfa (Mechanical Incorporation); Clover	2.11	0.97	1.18	0.13*	0.94	0.43*	0.53	0.06	0.30*	0.14*	0.17*	0.02	0.82	0.37*	0.12*	0.03	0.01	<0.00
Alfalfa Irrigated	3.20	1.47	1.80	0.20*	1.43	0.66	0.81	0.09	0.45*	0.21*	0.26*	0.03	1.25	0.56	0.18*	0.04	0.02	0.01
Almond; Sugarbeet (Irrigated)	0.03	1.16	1.42	0.16*	1.13	0.52	0.64	0.07	0.36*	0.16*	0.20*	0.02	0.99	0.44*	0.14*	0.04	0.02	<0.00
Bean, Dry; Citrus (Irrigated); Tomato; Walnut	1.63	0.75	0.92	0.10*	0.73	0.34*	0.41*	0.05	0.23*	0.11*	0.13*	0.01	0.64	0.29*	0.09	0.02	0.01	<0.00
Carrot	2.93	1.34	1.65	0.18*	1.31	0.60	0.74	0.08	0.42*	0.19*	0.23*	0.03	1.15	0.51	0.16*	0.04	0.02	0.01

Primary Feeding Strategy →		Herbivores and Omnivores								Insectivores				Granivores				
Animal Size →		Sm		Med		Lg		Sm		Med		Lg		Sm	Med	Lg		
Dietary Items →	Use(s) ↓	Short Grass	Tall Grass	Short Grass	Tall Grass	Short Grass	Tall Grass	Short Grass	Tall Grass	Short Grass	Tall Grass	Short Grass	Arthropods	Seeds, grains, etc.				
Castor Bean; Cotton	1.05	0.48	0.59	0.07	0.47	0.22	0.27	0.03	0.15	0.07	0.08	0.01	0.41	0.18	0.06	0.01	<0.00	
Conifer	3.16	1.45	1.78	0.20	1.41	0.65	0.80	0.09	0.45	0.21	0.25	0.03	1.24	0.55	0.18	0.04	0.02	0.01
Ornamental (Mechanical Incorporation)	7.79	3.57	4.38	0.49	3.49	1.60	1.96	0.22	1.11	0.51	0.62	0.07	3.05	1.37	0.43	0.11*	0.05	0.02
Potato	6.42	2.94	3.61	0.40	2.88	1.32	1.62	0.18	0.91	0.42	0.51	0.06	2.52	1.13	0.36	0.09	0.04	0.01
Safflower	1.58	0.72	0.89	0.10	0.71	0.37	0.40	0.04	0.22	0.10	0.13	0.01	0.62	0.28	0.09	0.02	0.01	<0.00
Sugarbeet (Mechanical Incorporation)	2.42	1.11	1.36	0.15	1.08	0.50	0.61	0.07	0.34	0.16	0.19	0.02	0.95	0.42	0.13	0.03	0.02	<0.00
Sunflower	2.94	1.35	1.66	0.18	1.32	0.60	0.74	0.08	0.42	0.19	0.24	0.03	1.15	0.52	0.16	0.04	0.02	0.01

Bolded cells indicate that acute risk cannot be precluded.

¹Using adjusted LD₅₀ values of 519, 661, and 934 mg a.i./kg-bw for small, medium, and large birds, respectively.

²Acute endangered species LOC = 0.1; acute risk LOC = 0.5

Acute Dietary Based Risk to Birds

Although a definitive LC₅₀ value was not established in the canary dietary study, mortality and sublethal effects (including ruffled appearance, ataxia, and changes in body weight) were noted. In order to gain a better understanding of how the EECs for the maximum labeled EPTC application rates relate to the toxicity data currently available for birds, the T-REX model is used to calculate a ratio of the EEC and toxicity endpoint using the conservative assumption that the highest value tested represents the toxicity endpoint. **Table 37** provides the ratio of the EEC and toxicity endpoint (labeled RQs for simplicity) for the labeled uses of EPTC. In this exercise, the majority of acute ratios calculated are <1, which indicates that the EEC is below the dietary concentration that caused no mortality in the acute dietary study. Furthermore, while the canary study did not provide information on toxicity of dietary concentrations above 4985 mg a.i./kg-diet, a dietary study with the mallard estimated the EC₅₀ at 20,000 mg a.i./kg-diet. If this definitive EC₅₀ were used to calculate acute dietary RQs, the RQ values would be approximately 4 times less than the values shown in **Table 37**, and all the values would be below the LOC of 0.5. Therefore, the acute dietary risk appears to be low for all species.

Table 37. Acute dietary-based RQs for birds, reptiles, and terrestrial-phase amphibians of different feeding classes exposed to EPTC – Spray Formulations (T-REX v. 1.5.2)¹

Primary Feeding Strategy →	Herbivores, Omnivores, and Granivores				Insectivores
Dietary Items →	Short Grass	Tall Grass	Broad-leaf Plants	Fruits, pods, seeds, etc.	Arthropods
Use(s) ↓					
Agricultural Fallow, Idleland, Conservation, Reserve; Corn; Citrus (Mechanical Incorporation); Ornamental (Broadcast); Potato	0.29	0.13	0.17	0.02	0.12
Alfalfa (Mechanical Incorporation); Clover	0.19	0.09	0.11	0.01	0.08
Alfalfa Irrigated	0.29	0.13	0.16	0.02	0.11
Almond; Sugarbeet (Irrigated)	0.23	0.11	0.13	0.01	0.09
Bean, Dry; Citrus (Irrigated); Tomato; Walnut	0.15	0.07	0.08	0.01	0.06
Carrot	0.27	0.12	0.15	0.02	0.11
Castor Bean; Cotton	0.10	0.04	0.05	0.01	0.04
Conifer	0.29	0.13	0.16	0.02	0.11
Ornamental (Mechanical Incorporation)	0.71	0.33	0.40	0.04	0.28
Potato	0.59	0.27	0.33	0.04	0.23
Safflower	0.14	0.07	0.08	0.01	0.06
Sugarbeet (Mechanical Incorporation)	0.22	0.10	0.12	0.01	0.09
Sunflower	0.27	0.12	0.15	0.02	0.11

Bolded cells indicate an exceedance of listed and non-listed bird LOC.

Based on LC₅₀ of 4985 mg kg-diet

Chronic dietary based risk to birds

Chronic effects are estimated using the lowest available NOAEC from a chronic study for birds, terrestrial-phase amphibians, and reptiles. Dietary-based EECs are divided by toxicity values to estimate chronic dietary-based RQs. Chronic dietary-based RQs are tabulated in Table 38. There were RQs that exceeded the LOC across all uses and most feeding strategies. The only feeding strategy that had RQs below the LOC were for organisms consuming fruits, pods, seeds etc. For a bird consuming short grass, the chronic RQs ranged from 2.98 for applications to castor bean and cotton (the lowest application rate) to 14.68 for ornamentals mechanical incorporation (the highest application rate).

Table 38. Chronic dietary-based RQs for birds, reptiles, and terrestrial-phase amphibians of different feeding classes exposed to EPTC – Spray Formulations (T-REX v. 1.5.2)¹

Primary Feeding Strategy → Dietary Items → Use(s) ↓	Herbivores, Omnivores, and Granivores				Insectivores
	Short Grass	Tall Grass	Broad-leaf Plants	Fruits, pods, seeds, etc.	Arthropods
Agricultural Fallow, Idleland, Conservation, Reserve; Corn; Citrus (Mechanical Incorporation); Ornamental (Broadcast); Potato	6.05	2.77	3.40	0.38	2.37
Alfalfa (Mechanical Incorporation); Clover	3.97	1.82	2.23	0.25	1.55
Alfalfa Irrigated	6.02	2.76	3.39	0.38	2.36
Almond; Sugarbeet (Irrigated)	4.77	2.19	2.68	0.30	1.87
Bean, Dry; Citrus (Irrigated); Tomato; Walnut	3.07	1.41	1.73	0.19	1.20
Carrot	5.52	2.53	3.11	0.35	2.16
Castor Bean; Cotton	1.98	0.91	1.12	0.12	0.78
Conifer	5.95	2.73	3.35	0.37	2.33
Ornamental (Mechanical Incorporation)	14.68	6.73	8.26	0.92	5.75
Potato	12.10	5.55	6.81	0.76	4.74
Safflower	2.98	1.36	1.67	0.19	1.17
Sugarbeet (Mechanical Incorporation)	4.56	2.09	2.57	0.29	1.79
Sunflower	5.55	2.54	3.12	0.35	2.17

Bolded cells indicate an exceedance of listed and non-listed bird LOC.

¹Chronic LOC for listed and non-listed species = 1.0

Based on NOAEC of 242 mg/kg-diet

Acute granular risk to birds

To assess acute risk to birds from exposure to granular formulations to birds, the EFED typically uses the LD₅₀-per-square-foot RQs. This assessment calculates the amount of active ingredient available to the bird on one square foot of a treated field, and compares that amount to the median lethal dose (LD₅₀). In this assessment, exposure to granules is reduced by soil incorporation based on the percentage of applied granules that are expected to remain on the surface after incorporation. Because a definitive LD₅₀ value has not been established for birds, the actual acute RQ values are unknown. In order to gain a better understanding of how exposure from the maximum labeled EPTC application rates relate to the toxicity data currently available for birds, the T-REX model is used to calculate upper-bound LD₅₀-per-square-foot values using the conservative assumption that the highest value tested represents the toxicity endpoint.

To account for different methods of soil incorporation which may be used with EPTC, the RQs were calculated for “thorough incorporation” and “light incorporation” to reflect the difference in granule availability in soil, and incorporation by irrigation water only. “Thorough incorporation” refers to methods that more fully buries granules, such as a shank-in application or with a t-band applicator or, whereas “light incorporation” refers to methods of shallow mixing of soil, such as with a rolling cultivator or rotary hoe. EFED assumes 1% and 15% of granules remain available on the surface following thorough and light incorporation, respectively. With incorporation by irrigation, 100% of the granules are assumed to remain on the surface. It is recognized, however, that irrigation would move a considerable amount of active ingredient off the granules and into the soil. The RQs presented for ‘incorporation by irrigation’ only represent potential exposure until the irrigation water is applied, after which they would overestimate risk. This issue is discussed further in the Risk Description section (4.3).

Table 39 provides the conservative LD₅₀-per-square-foot values (labeled RQs for simplicity) for the labeled uses of granular EPTC. In this exercise, ratios calculated are > 1 only for use with soil incorporation by irrigation only, and only for small birds. Acute risk to small birds is possible, but uncertain. Ratios were < 1 but exceeded LOC of 0.5 for small birds when the application rate is 4 lb a.i./A or greater. Considering the conservative approach used, the LOC is exceeded for exposure to small birds with these uses; therefore, acute effects are possible, but unlikely. Acute risk is low for medium to large birds with light soil incorporation, and for all birds with more thorough soil incorporation.

Table 39. Acute RQs (LD_{50} -per-square foot) for birds, reptiles, and terrestrial-phase amphibians of different feeding classes exposed to EPTC Granular Formulations (T-REX v. 1.5.2).^{1,2}

Soil Incorporation →		Deep Cultivation			Light Cultivation			Irrigation		
Animal Size →		Sm	Med	Lg	Sm	Med	Lg	Sm	Med	Lg
Use(s)	Max. Single Appl. Rate (lb a.i./A) ↓									
Agricultural Fallow, Idleland, Conservation, Reserve; Citrus; Conifer; Potato	6.0	0.06	0.01	<0.01	0.90	0.14	0.01	6.02	0.95	0.07
Bean, Dry; Sugarbeet; Sunflower	4.5	0.05	0.01	<0.01	0.68	0.11	0.01	4.51	0.71	0.05
Bean	4.0	0.04	0.01	<0.01	0.60	0.09	0.01	4.01	0.63	0.04
Alfalfa (Soil Incorporation)	4.0	0.04	0.01	<0.01	0.60	0.09	0.01	N/A	N/A	N/A
Alfalfa (Broadcast);	3.0	N/A	N/A	N/A	N/A	N/A	N/A	3.01	0.47	0.03
Carrot; Corn; Safflower	3.0	0.03	<0.01	<0.01	0.45	0.07	0.01	3.01	0.47	0.03
Castor Bean	2.0	0.02	<0.01	<0.01	0.30	0.05	<0.01	2.01	0.32	0.02

Bolded cells indicate that the RQ exceeds the LOC.

¹ Using adjusted LD_{50} values of 519, 661, and 934 mg a.i./kg-bw for small, medium, and large birds, respectively.
² Acute endangered species LOC = 0.1; acute risk LOC = 0.5

4.2.2 Risk to Mammals

Potential risks to mammals are evaluated using T-REX, acute and chronic toxicity data for laboratory rats, and the most sensitive dietary item and size class for that species. For mammals the most sensitive RQ in T-REX is for the small mammal consuming short grass.

The acute and chronic dose-based and dietary-based RQs for mammals are tabulated below in **Table 40**, **Table 41**, and **Table 42**, respectively.

Acute dose based risk to mammals

Acute effects are estimated using the lowest available LD_{50} from an acute study for mammals. Dose-based EECs are divided by toxicity values to estimate acute dose-based RQs. RQs for acute dose-based risk have been presented in **Table 40**.

Acute dose-based RQs for mammals exceed the acute LOC for listed and non-listed species for several feeding strategies and weight classes for the highest application rate (ornamentals with mechanical incorporation), with RQs ranging from 0.01 to 1.05. For the remaining uses, RQs exceed the listed species LOC for the majority of the assessed feeding strategies and weight classes, with RQs ranging from <0.01 to 0.43.

Table 40. Acute dose-based RQ values for mammals exposed to EPTC-spray formulations (T-REX v. 1.5.2)^{1,2}

Primary Feeding Strategy →	Herbivores and Omnivores						Insectivores						Granivores				
	Sm		Med		Lg		Sm		Med		Lg		Sm	Med	Lg		
Dietary Items →	Short Grass	Tall Grass	Short Grass	Tall Grass	Short Grass	Fruits, pods, seeds, etc.	Plants	Broadleaf	Tall Grass	Short Grass	Fruits, pods, seeds, etc.	Plants	Broadleaf	Fruits, pods, seeds, etc.	Arthropods	Seeds, grains, etc.	
Food crops																	
Agricultural																	
Fallow, Idleland, Conservation, Reserve; Corn; Citrus (Mechanical Incorporation); Ornamental (Broadcast); Potato	0.43*	0.20*	0.24*	0.03	0.37*	0.17*	0.21*	0.02	0.20*	0.09	0.11*	0.01	0.17*	0.15*	0.08	0.01	0.01 <0.01
Alfalfa (Mechanical Incorporation); Clover	0.28*	0.13*	0.16*	0.02	0.24*	0.11*	0.14*	0.02	0.13*	0.06	0.08	0.01	0.11*	0.10*	0.05	<0.01	<0.01 <0.01
Alfalfa Irrigated	0.43*	0.20*	0.24*	0.03	0.37*	0.17*	0.21*	0.02	0.20*	0.09	0.11*	0.01	0.17*	0.14*	0.08	0.01	0.01 <0.01
Almond; Sugarbeet (Irrigated)	0.34*	0.16*	0.19*	0.02	0.29*	0.13*	0.16*	0.02	0.16*	0.07	0.09	0.01	0.13*	0.11*	0.06	<0.01	<0.01 <0.01
Bean, Dry; Citrus (Irrigated); Tomato; Walnut	0.22*	0.10*	0.12*	0.01	0.19*	0.09	0.11*	0.01	0.05	0.06	0.01	0.09	0.07	0.04	<0.01	<0.01	<0.01
Carrot	0.40*	0.18*	0.22*	0.02	0.34*	0.15*	0.19*	0.02	0.18*	0.08	0.10*	0.01	0.16*	0.13*	0.07	0.01	<0.01 <0.01
Castor Bean; Cotton	0.14*	0.07	0.08	0.01	0.12*	0.06	0.07	0.01	0.07	0.03	0.04	<0.01	0.06	0.05	0.03	<0.01	<0.01 <0.01
Conifer	0.43*	0.20*	0.24*	0.03	0.36*	0.17*	0.20*	0.02	0.20*	0.09	0.11*	0.01	0.17*	0.14*	0.08	0.01	0.01 <0.01

Ornamental (Mechanical Incorporation)	1.05	0.48*	0.59	0.07	0.90	0.41*	0.51	0.06	0.48*	0.22*	0.27*	0.03	0.41*	0.35*	0.19*	0.01	0.01	0.01
Potato	0.87	0.40	0.49*	0.05	0.74	0.34	0.42*	0.05	0.40*	0.18	0.22*	0.02	0.34*	0.29*	0.16*	0.01	0.01	0.01
Safflower	0.21*	0.10*	0.12*	0.01	0.18*	0.08	0.10*	0.01	0.10*	0.04	0.05	0.01	0.08	0.07	0.04	<0.01	<0.01	<0.01
Sugarbeet (Mechanical Incorporation)	0.33*	0.15*	0.18*	0.02	0.28*	0.13*	0.16*	0.02	0.15*	0.07	0.08	0.01	0.13*	0.11*	0.06	<0.01	<0.01	<0.01
Sunflower	0.40*	0.18*	0.22*	0.02	0.34*	0.16*	0.19*	0.02	0.18*	0.08	0.10*	0.01	0.16*	0.13*	0.07	0.01	<0.01	<0.01

Bolded cells indicate an exceedance of listed and non-listed bird LOC.

* Indicates an exceedance of listed bird LOC only.

¹Using adjusted LD₅₀ values of 3220, 2605, and 1127 mg/kg-bw for small, medium, and large mammals, respectively.

²Acute endangered species LOC = 0.1; acute high risk LOC = 0.5

Chronic dose based risk to mammals

Chronic effects are estimated using the lowest available NOAEC from a chronic study for mammals. Dose-based EECs are divided by toxicity values to estimate chronic dose -based RQs. The chronic RQs have been presented in **Table 41**. RQs exceed the chronic LOC of 1.0 for nearly every assessed application rate, feeding strategy, and mammalian weight class. RQs range from 0.53 to 616.

Table 41. Chronic dose-based RQ values for mammals exposed to EPTC- spray formulations (T-REX v.1.5.2)^{1,2}

Primary Feeding Strategy →	Herbivores and Omnivores						Insectivores			Granivores		
	Sm	Med	Med	Lg	Sm	Med	Lg	Sm	Med	Lg	Sm	Med
Dietary Items →	Short Grass	Tall Grass	Short Grass	Tall Grass	Broadleaf Plants	Broadleaf Plants	Fruits, pods, seeds, etc.	Broadleaf Plants	Broadleaf Plants	Fruits, pods, seeds, etc.	Seeds, grains, etc.	
Use(s) ↓												
Agricultural Fallow, Idleland, Conservation, Reserve; Corn; Citrus (Mechanical Incorporation); Ornamental (Broadcast); Potato	254.25	116.53	143.01	15.89	216.78	99.36	121.94	13.55	116.49	53.39	65.53	7.28
Alfalfa (Mechanical Incorporation); Clover	166.72	76.41	93.78	10.42	142.16	65.15	79.96	8.89	76.39	35.01	44.53	4.78
Alfalfa Irrigated	253.21	116.05	142.43	15.83	215.90	98.96	121.44	13.49	116.02	53.18	65.26	7.25
Almond; Sugarbeet (Irrigated)	200.54	91.91	112.80	12.53	170.99	78.37	96.18	10.69	91.89	42.11	51.68	5.74
Bean, Dry; Citrus (Irrigated); Tomato; Walnut	129.21	59.22	72.68	8.07	110.17	50.49	61.97	6.89	6.08	27.14	33.30	3.70
Carrot	232.17	106.41	130.60	14.51	197.96	90.73	111.36	12.37	106.38	48.76	59.84	6.65

Primary Feeding Strategy →	Herbivores and Omnivores								Insectivores				Granivores					
	Animal Size →		Sm		Med		Lg		Sm		Med		Lg	Sm	Med	Lg		
Dietary Item(s) ↓	Short Grass	Tall Grass	Short Grass	Tall Grass	Short Grass	Tall Grass	Short Grass	Tall Grass	Short Grass	Tall Grass	Short Grass	Fruits, pods, seeds, etc.	Fruits, pods, seeds, etc.	Fruits, pods, seeds, etc.	Arthropods	Seeds, grains, etc.		
Castor Bean; Cotton	83.36	38.21	46.89	5.21	71.08	32.58	39.98	4.44	38.19	17.51	21.48	2.39	32.65	27.84	14.96	1.16	0.99	0.53
Conifer	250.08	114.62	140.67	15.63	213.23	97.73	119.94	13.33	114.58	52.52	64.45	7.16	97.95	83.51	44.88	3.47	2.96	1.59
Ornamental (Mechanical Incorporation)	616.86	282.73	346.98	38.55	525.97	241.07	295.86	32.87	282.64	129.54	158.98	17.67	241.60	206.00	110.70	8.57	7.31	3.93
Potato	508.49	233.06	286.03	31.78	433.57	198.72	243.88	27.10	232.98	106.79	131.06	14.56	199.16	169.82	91.26	7.06	6.02	3.23
Safflower	125.04	57.31	70.34	7.81	106.62	48.87	59.97	6.66	57.29	26.26	32.23	3.58	48.97	41.76	22.44	1.74	1.48	0.80
Sugarbeet (Mechanical Incorporation)	191.73	87.87	107.85	11.98	163.48	74.93	91.96	10.22	87.85	40.27	49.42	5.49	75.09	64.03	34.41	2.66	2.27	1.22
Sunflower	233.12	106.85	131.13	14.57	198.77	91.10	111.81	12.42	106.81	48.96	60.08	6.68	91.31	77.85	41.83	3.24	2.76	1.48

Bolded cells indicate that the RQ exceeds the LOC for chronic risk to listed and non-listed mammals.

¹Using adjusted NOAEL values of 5.49, 4.45, and 1.92 mg a.i./kg-diet for small, medium, and large mammals, respectively.

²Chronic risk LOC = 1.0

Chronic dietary based risk to mammals

Dietary-based EECs are divided by toxicity values to estimate chronic dietary-based RQs. Chronic dietary based RQs have been presented in **Table 42**. RQs exceed the chronic LOC of 1.0 for nearly every assessed application rate and feeding strategy, with RQs ranging from 0.6 to 71.

Table 42. Chronic dietary-based RQs for mammals of exposed to EPTC – spray formulations (T-REX v.1.5.2)¹

Primary Feeding Strategy →	Herbivores, Omnivores, and Granivores				Insectivores
Dietary Items →	Short Grass	Tall Grass	Broad-leaf Plants	Fruits, pods, seeds, etc.	Arthropods
Use(s) ↓	Food crops				
Agricultural Fallow, Idleland, Conservation, Reserve; Corn; Citrus (Mechanical Incorporation); Ornamental (Broadcast); Potato	29.28	13.42	16.46	1.83	11.47
Alfalfa (Mechanical Incorporation); Clover	19.20	8.80	10.80	1.20	7.52
Alfalfa Irrigated	29.16	13.37	16.40	1.82	11.42
Almond; Sugarbeet (Irrigated)	23.09	10.59	12.99	1.44	9.05
Bean, Dry; Citrus (Irrigated); Tomato; Walnut	14.88	6.82	8.37	0.93	5.83
Carrot	26.74	12.25	15.04	1.67	10.47
Castor Bean; Cotton	9.60	4.40	5.40	0.60	3.76
Conifer	28.80	13.20	16.20	1.80	11.28
Ornamental (Mechanical Incorporation)	71.04	32.56	39.96	4.44	27.82
Potato	58.56	26.84	32.94	3.66	22.92
Safflower	14.40	6.60	8.10	0.90	5.64
Sugarbeet (Mechanical Incorporation)	22.08	10.12	12.42	1.38	8.65
Sunflower	26.85	12.31	15.10	1.68	10.52

Bolded values indicate LOC exceedance
¹Chronic risk LOC = 1
Based on an adjusted NOAEC of 50 mg/kg-diet

Acute granular risk to mammals

Acute effects for granular products are estimated using the LD₅₀-per-square-foot RQs based on the lowest available rat LD₅₀ value. LD₅₀-per-square-foot RQs for uses of granular EPTC are presented in **Table 43**. RQs were calculated using the assumption that 1%, 15%, and 100% of

applied granules are available on the surface following deep soil incorporation, light soil incorporation, and incorporation by irrigation only, respectively.

Acute dose-based RQs for mammals exceed the acute LOC for non-listed species only for use with applications that are soil incorporated by irrigation only (i.e., no cultivation of the soil). For that case, the RQ exceeds the LOC for small mammals with application rates of 3 lb a.i./A or above, and for medium mammals with application rates of 4.5 lb a.i./A or above. As mentioned previously, the predicted exposure would be greatly reduced once the application area is irrigated as the irrigation water would leach much of the a.i. from the granules into the soil. For all uses when the granules are irrigated by light or deep cultivation, RQs are below the LOC for non-listed species. RQs exceed the LOC for listed species for small to medium mammals for all uses when soil incorporation is by irrigation only, and for small mammals for uses with application rates of 4.0 lb a.i./A or above when there is light soil incorporation.

Table 43. Acute RQs (LD₅₀-per-square foot) for mammals of different feeding classes exposed to EPTC Granular Formulations (T-REX v. 1.5.2)^{1,2}

Soil Incorporation →		Deep Cultivation			Light Cultivation			Irrigation		
Animal Size →		Sm	Med	Lg	Sm	Med	Lg	Sm	Med	Lg
Use(s)	Max. Single Appl. Rate (lb a.i./A) ↓									
Agricultural Fallow, Idleland, Conservation, Reserve; Citrus; Conifer; Potato	6.0	0.01	0.01	<0.01	0.19*	0.10	0.01	1.29	0.69	0.06
Bean, Dry; Sugarbeet; Sunflower	4.5	0.01	0.01	<0.01	0.15*	0.08	0.01	0.97	0.51	0.04
Bean	4.0	0.01	<0.01	<0.01	0.13*	0.07	0.01	0.86	0.46*	0.04
Alfalfa (Soil Incorporation)	4.0	0.01	<0.01	<0.01	0.13*	0.07	0.01	N/A	N/A	N/A
Alfalfa (Broadcast);	3.0	N/A	N/A	N/A	N/A	N/A	N/A	0.65	0.34*	0.03
Carrot; Corn; Safflower	3.0	0.01	<0.01	<0.01	0.10	0.05	<0.01	0.65	0.34*	0.03
Castor Bean	2.0	<0.01	<0.01	<0.01	0.06	0.03	<0.01	0.43*	0.23*	0.02

Bolded cells indicate an exceedance of listed and non-listed mammal LOC.

* Indicates an exceedance of listed bird LOC only.

¹ Using adjusted LD₅₀ values of 3220, 2605, and 1127 mg/kg-bw for small, medium, and large mammals, respectively.

² Acute endangered species LOC = 0.1; acute risk LOC = 0.5

4.2.3 Risk to honeybees

Table 44 summarizes the acute contact RQ values for adult honey bees that are assumed to be foraging on the treated crop during pesticide application. As such, Table 44 includes only those

crops that are considered bee attractive or for which no data are available on bee attractiveness.

For these crops and proposed application rates, acute contact RQ values are above the LOC of 0.4 for all uses. The estimate of contact exposure is considered conservative (although not impossible) since it is determined using a high end estimate of forager bee exposure to spray droplets.

Data are only available for the acute contact toxicity of EPTC to bees; the acute oral toxicity of EPTC to bees remains an uncertainty. Also, data are not available to assess risk of chronic oral exposure to adult bees, or acute or chronic exposure to larval bees.

Table 44. Tier 1 (Default) Adult, Acute Contact Risk Quotients for Honey Bees Foraging on Treated Fields

Crop/ Max. Single Application Rate	Application rate (lb a.i./A)	Predicted Dose (μg a.i./bee) ⁽¹⁾	EPTC Contact LD ₅₀ (μg a.i./bee)	Acute RQ ⁽²⁾⁽³⁾
Agricultural Fallow, Idleland, Conservation, Reserve; Corn; Citrus (Mechanical Incorporation); Ornamental (Broadcast)	6.1	16.47	> 12.09	1.36
Alfalfa (Mechanical Incorporation); Clover	4	10.8	> 12.09	0.89
Alfalfa Irrigated	3	8.1	> 12.09	0.67
Almond; Sugarbeet (Irrigated)	3.1	8.37	> 12.09	0.69
Bean, Dry; Citrus (Irrigated); Tomato; Walnut	3.1	8.37	> 12.09	0.69
Carrot	3	8.1	> 12.09	0.67
Castor Bean; Cotton	2	5.4	> 12.09	0.45
Conifer	6	16.2	> 12.09	1.34
Ornamental (Mechanical Incorporation)	14.8	39.96	> 12.09	3.31
Potato	12.2	32.94	> 12.09	2.72
Safflower	3	8.1	> 12.09	0.67
Sugarbeet (Mechanical Incorporation)	4.6	12.42	> 12.09	1.03
Sunflower	3.1	8.37	> 12.09	0.69

⁽¹⁾ A dose of 2.7 μg a.i./bee is predicted per each pound of a.i. applied per acre. Source: USEPA 2014. Guidance for Assessing Pesticide Risks to Bees.

⁽²⁾ Based on a 48-h acute contact LD₅₀ of >12.09 μg ai/bee for EPTC (MRID 00036935).

⁽³⁾ Terrestrial invertebrate LOC is 0.4. RQ values provided for crops with unknown bee attractiveness are assumed to be attractive to bees.

4.2.4 Risk to terrestrial plants

Risk to terrestrial plants in dry and semi-aquatic areas resulting from runoff and spray drift of EPTC were estimated using the TerrPlant (v.1.2.2) model. The TerrPlant derived EECs are compared to the most sensitive monocot and dicot EC₂₅ to generate a non-listed species RQ and compared to the most sensitive NOAEC or EC₀₅ to generate a listed species RQ. The listed and non-listed terrestrial plant LOC is 1. The RQs for terrestrial plants have been tabulated in **Table 45** and **Table 46**.

RQs for both monocots and dicots exceeded the LOC for listed and non-listed species in semi-aquatic areas for all of the scenarios evaluated, with RQs ranging from 2.24 to 43.38. While RQs for monocots in dry areas exceed the LOC for listed and non-listed species for most of the scenarios (RQs range from 0.43 to 5.10), RQs for dicots only exceed for the uses with the highest application rates (RQs range from 0.26 to 3.17). The results of TerrPlant suggest that exposure via spray drift alone is not a concern for monocots or dicots.

Table 45. RQs for non-target monocots adjacent to EPTC use areas¹

Crop	Single Max. Application Rate (lb a.i./A)/ Method of Application	Monocot RQ Values					
		Spray Drift Only		Runoff and Spray Drift (Dry Areas)		Runoff and Spray Drift (Semi-Aquatic Areas)	
		Non- listed Species	Listed Species	Non- listed Species	Listed Species	Non- listed Species	Listed Species
Agricultural Fallow, Idleland, Conservation, Reserve; Corn; Citrus (Mechanical Incorporation); Ornamental (Broadcast)	6.1	0.35	0.22	2.13	1.32	17.87	11.11
Alfalfa (Mechanical Incorporation); Clover	4	0.23	0.14	1.38	0.86	11.72	7.29
Alfalfa Irrigated; Carrot	3	0.17	0.11	1.03	0.64	8.79	5.46
Almond; Sugarbeet (Irrigated); Bean, Dry; Citrus (Irrigated); Tomato; Walnut; Sunflower (spring application)	3.1	0.18	0.11	1.07	0.66	9.09	5.65
Castor Bean; Cotton	2	0.11	< 0.01	0.69	0.43	5.86	3.64
Conifer	6	0.34	0.21	2.07	1.29	17.59	10.93
Ornamental (Mechanical Incorporation)	14.8	0.85	0.53	5.10	3.17	43.38	26.96
Potato	12.2	0.70	0.44	4.21	2.61	35.76	22.22

Crop	Single Max. Application Rate (lb a.i./A)/ Method of Application	Monocot RQ Values					
		Spray Drift Only		Runoff and Spray Drift (Dry Areas)		Runoff and Spray Drift (Semi-Aquatic Areas)	
		Non-listed Species	Listed Species	Non-listed Species	Listed Species	Non-listed Species	Listed Species
Sugarbeet (Mechanical Incorporation); Sunflower (fall application)	4.6	0.26	0.16	1.59	0.99	13.48	8.38
N/D = Not determined							
¹ Bolded values exceed LOC; LOC for listed and non-listed species = 1							

Table 46. RQs for non-target dicots adjacent to EPTC use areas¹

Crop	Single Max. Application Rate (lbs a.i./A)/ Method of Application	Dicot RQ Values					
		Spray Drift Only		Runoff and Spray Drift (Dry Areas)		Runoff and Spray Drift (Semi-Aquatic Areas)	
		Non-listed Species	Listed Species	Non-listed Species	Listed Species	Non-listed Species	Listed Species
Agricultural Fallow, Idleland, Conservation, Reserve; Corn; Citrus (Mechanical Incorporation); Ornamental (Broadcast)	6.1	0.13	0.13	0.81	1.32	6.82	11.11
Alfalfa (Mechanical Incorporation); Clover	4	< 0.01	< 0.01	0.53	0.86	4.47	7.29
Alfalfa Irrigated; Carrot	3	< 0.01	< 0.01	0.39	0.64	3.36	5.46
Almond; Sugarbeet (Irrigated); Bean, Dry; Citrus (Irrigated); Tomato; Walnut; Sunflower (spring application)	3.1	< 0.01	< 0.01	0.41	0.66	3.47	5.65
Castor Bean; Cotton	2	< 0.01	< 0.01	0.26	0.43	2.24	3.64
Conifer	6	0.13	0.13	0.79	1.29	6.71	10.93
Ornamental (Mechanical Incorporation)	14.8	0.32	0.32	1.95	3.17	16.55	26.96
Potato	12.2	0.27	0.27	1.61	2.61	13.64	22.22

Crop	Single Max. Application Rate (lbs a.i./A)/ Method of Application	Dicot RQ Values					
		Spray Drift Only		Runoff and Spray Drift (Dry Areas)		Runoff and Spray Drift (Semi-Aquatic Areas)	
		Non-listed Species	Listed Species	Non-listed Species	Listed Species	Non-listed Species	Listed Species
Sugarbeet (Mechanical Incorporation); Sunflower (fall application)	4.6	0.10	0.10	0.61	0.99	5.14	8.38

N/D = Not determined

¹**Bolded** values exceed LOC; LOC for listed and non-listed species = 1

4.3 Risk Description

4.3.1 Risk to Aquatic Organisms

A summary of the maximum EPTC acute and chronic RQ values derived for aquatic animals is shown in **Table 47**.

For freshwater fish, the most sensitive endpoints are LC₅₀ = 14 ppm (rainbow trout acute toxicity) and NOAEC = 0.04 ppm (based on ACR for fathead minnow). For estuarine/marine fish the most sensitive endpoint is LC₅₀ = 17 ppm (sheepshead minnow acute toxicity) and NOAEC = 0.05 ppm (based on ACR for fathead minnow). The maximum peak EEC used in calculating acute RQs for freshwater and estuarine/marine fish is appreciably lower than the acute endpoints at 52.40 ppb (0.0524 ppm); the maximum 60-day EEC used in calculating chronic RQs for freshwater and estuarine/marine fish is also substantially lower than the chronic endpoints at 17.8 ppb (0.0178 ppm).

For freshwater invertebrates, the most sensitive endpoints are EC₅₀ 6.5 ppm (daphnia acute toxicity) and NOAEC = 0.81 ppm (chronic daphnia toxicity). For estuarine/marine invertebrates the most sensitive endpoint is EC₅₀ = 0.63 ppm (white shrimp acute toxicity) and NOAEC = 0.08 ppm (based on ACR for daphnid). The maximum peak EEC (0.0524 ppm) used in calculating acute RQs for freshwater and estuarine/marine invertebrates is appreciably lower than the acute endpoints for freshwater invertebrates; however, this EEC is high enough to exceed the listed species LOC for estuarine/marine invertebrates. Risk to listed estuarine/marine invertebrates is identified for uses of EPTC on carrots, conifers, corn, potatoes, and ornamentals; however, these exceedances are marginal. For chronic exposure, the maximum 21-day EEC used in calculating chronic RQs for freshwater and estuarine/marine invertebrates is 34 ppb (0.034 ppm) and is substantially lower than the chronic endpoints.

Table 47. Summary of aquatic animal risk profile for EPTC

Exposure	FW Fish RQ	SW Fish RQ	FW Invert. RQ	SW Invert. RQ
Spray Formulations¹				
Acute	<0.01	<0.01	<0.01	0.08
Chronic	0.45	0.36	0.04	0.43
Granular Formulations²				
Acute	<0.01	<0.01	<0.01	0.002
Chronic	0.15	0.12	0.01	0.13

¹RQ values based on the maximum aquatic EECs derived from the FLnurserySTD_V2_+0 exposure scenario; see Risk Estimation **Section 5.1** for derivation of these RQ values

²RQ values based on the maximum aquatic EECs derived from the IDNpotato_WirrigSTED_+0 exposure scenario; see Risk Estimation **Section 5.1** for derivation of these RQ values

A summary of the maximum EPTC RQ values derived for aquatic nonvascular and vascular plants across all use patterns is shown in **Table 48**. There were no RQs that exceeded the Agency LOC of 1.0 for listed or non-listed species.

For nonvascular plants the most sensitive endpoints are EC₅₀ = 1.4 ppm and a NOAEC = 0.9 ppm (*Pseudokirchneriella subcapitata*). For vascular plants, the most sensitive endpoints are EC₅₀ = 5.6 ppm and a NOAEL = 0.89 ppm (duckweed). The maximum peak EEC used in calculating RQs for vascular and nonvascular plants is lower than the EC₅₀ and NOAEC at 52.40 ppb (0.0524 ppm).

Table 48. Summary of aquatic plant risk profile for EPTC

Exposure	Nonvascular Plants	Vascular Plants
Spray Formulations¹		
Listed	0.06	0.06
Non-listed	0.04	<0.01
Granular Formulations²		
Listed	0.02	0.00
Non-listed	0.01	<0.01

¹RQ values based on the maximum aquatic EECs derived from the FLnurserySTD_V2_+0 exposure scenario; see Risk Estimation **Section 5.1** for derivation of these RQ values

²RQ values based on the maximum aquatic EECs derived from the IDNpotato_WirrigSTED_+0 exposure scenario; see Risk Estimation **Section 5.1** for derivation of these RQ values

4.3.2 Risk to Terrestrial Organisms

On Field Exposure Analysis

Being a pre- and post-emergent herbicide, EPTC is expected to be applied mainly to bare soil. Therefore, little vegetation is expected to be present at the treatment site. Also, EPTC must be either mechanically incorporated, soil injected, or watered in by irrigation. Soil injection or spraying followed irrigation to water in would result in little residues of EPTC on plants food that wildlife may eat. Also, the soil may be tilled after application to incorporate EPTC, which would destroy any plants growing in the cropped area. Therefore, these application methods are expected to result in very little exposure to wildlife from consuming foliage or fruit at the site of application; however, terrestrial invertebrates (especially soil dwelling invertebrates) and seeds present on the field at the time of application may pose risk to birds and mammals that consume them. Therefore, the discussion of risk from on field exposure to EPTC will focus on birds and mammals with insectivorous and granivorous feeding strategies. Table 49 summarizes the maximum RQs values for terrestrial arthropods for use of EPTC on ornamental plants (the use with the highest use rate) and two other major uses, potatoes and peas/beans. RQs are given for terrestrial arthropods because they are greater than, and thus more protective, than ones for seeds.

Table 49. Summary of the Avian and Mammalian Risk Profile for EPTC

Use	Exposure	Avian Dose RQ	Avian Dietary RQ	Mammalian Dose RQ	Mammalian Dietary RQ
Ornamental Plants	Acute	3.05	0.28	0.41	NA
	Chronic	NA	5.75	241.60	27.82
Potatoes	Acute	2.52	0.23	0.34	NA
	Chronic	NA	4.74	199.16	22.92
Peas and Beans	Acute	0.64	0.06	0.09	NA
	Chronic	NA	1.20	50.61	5.83

RQ values based on the terrestrial EECs derived from use on ornamentals; see Risk Estimation for derivation of these RQ values

Bolded values indicate possible acute risk or chronic risk that exceeds the LOC for non-listed species

Because the acute RQs are conservative values based on the highest test level with no mortality rather than the LD₅₀/LC₅₀, they are not considered indicative of possible risk unless they are greater than 1. The chronic RQs are considered indicative of chronic risk when they exceed the LOC of 1. For ornamental plants and potatoes, the two uses with the highest use rates, this analysis indicates chronic risk and possible acute risk to birds. Potato is a major use of EPTC (42% of total pounds of a.i.), whereas ornamental plants is a very minor use (<1% of total pounds of a.i.). For peas and beans, as well as most other uses with lower application rates, the analysis indicates chronic risk to wildlife, but not acute risk.

It should be noted that the exposure to residues that may pose acute and/or chronic risk to terrestrial wildlife feeding on field are expected to persist for only a short time. To be effective, EPTC must be incorporated several inches into the soil within hours after application. This would bury much of the applied active ingredient, reducing the residues on the surface to which most animals would be exposed (except for fossorial animals). Both tilling and “watering in” would tend to move much of the applied residues beneath the surface, and not available except to fossorial species. Furthermore, EPTC is extremely volatile. Therefore, any residues which do remain on the surface are expected to quickly dissipate by volatilizing into the air. Because of this, most animals feeding on treated fields are only expected to be exposed to potentially toxic residues for a few hours after application. Fossorial animals, such as moles, pocket gophers, and burrowing owls, may be exposed for a more extended period of time, and therefore may be at greater risk if they burrow into treated fields.

For granular applications, residues available to wildlife on the surface are also expected to be short-lived when the active ingredient is followed by irrigation. In order for the granular products to be effective, enough water must be applied to leach much of the active ingredient out of the granules and into the upper few inches of soil. As with spray applications, any residues that leach out of the granules but remain near the surface would quickly dissipate by volatility. This clearly would reduce the amount of active ingredient available to wildlife feeding on the surface. In addition, depending on the granular material, the irrigation water may cause the granules to disintegrate, which would prevent them from being picked up by birds for grit use. Therefore, the RQ calculations for granular applications likely overestimate risk, except for when animals feed on the field immediately after application, prior to irrigation.

For avian species, the most sensitive acute toxicity study resulted in an LD₅₀ >1000 mg/kg-bw (northern bobwhite) and the most sensitive dietary toxicity study resulted in an LC₅₀ > 4985 mg/kg-diet (canary). These studies show EPTC to be practically non-toxic to no more than slightly toxic to avian species on acute dose or dietary basis. However, there were a number of RQ exceedances on an acute oral and sub-acute dietary basis when these non-definitive endpoints were conservatively used to estimate risk. These exceedances are associated with small and medium insectivorous birds across all application rates.

For acute dose-based risk, small birds consuming arthropods, the RQs range from 0.41 to 3.05; medium birds consuming arthropods have RQs ranging from 0.18 to 1.37. There is uncertainty concerning the acute RQs for birds as the endpoints used in risk quotient formulation were non-definitive greater than values. While mortalities were not observed in the available study, birds at the highest test concentration did regurgitate the test material, suggesting a potential toxic response. While using the non-definitive toxicity endpoint to calculate RQs results in a conservative estimate of risk, it is not possible to determine whether the actual LD₅₀ for birds is greater than the estimated environmental concentrations. For acute dietary-based risk, the ratio of dietary EEC to the highest test concentration with no mortality range from 0.10 to 0.71. These ratios were used in lieu of RQs because the canary study did not yield a definitive LC₅₀ value. This finding suggests low risk, but cannot preclude that all of the actual LC₅₀ values are less than the acute LOC of 0.5. However, a second dietary study, conducted with the mallard duck, resulted in an LC₅₀ = 20,000 mg/kg-diet. If this study more accurately represents the toxicity of EPTC on a dietary basis, then risk from dietary-based exposure would not be anticipated.

The most sensitive chronic avian toxicity study resulted in a NOAEC = 242 mg/kg-diet (mallard). Since the Agency LOC of 1.0 was exceeded for every use across nearly all feeding strategies (with the exception of fruits, pods, seeds etc.), chronic risk to birds as a result of exposure to EPTC is expected. The maximum RQ associated with the maximum application rate, ornamentals, was 14.68; the maximum RQ associated with the minimum application rate was 1.98.

For mammals, the most sensitive acute toxicity study resulted in an LD₅₀ = 1465 mg a.i./kg-bw. These studies show EPTC to be slightly toxic to mammals on an acute basis. Acute dose-based RQs do not exceed the LOC for insectivorous or granivorous mammals.

The most sensitive chronic toxicity study resulted in a NOAEC = 50 mg/kg-diet, based on decreased body weight, degenerative cardiomyopathy, and renal tubule degeneration. Chronic risk to mammals as a result of exposure to EPTC is expected. The Agency LOC of 1.0 was exceeded for mammals on a dose-based and dietary-based chronic basis for uses beyond just those with the highest application rates. Chronic dose-based risk shows RQs above 1.0 for all feeding strategies for nearly all uses, across all sized mammals. As discussed above, EPTC must be either mechanically incorporated, soil injected, or watered in by irrigation. These application methods are not likely to result in deposition of residues on plant foliage at the site of application; however, terrestrial invertebrates (especially soil dwelling invertebrates) and seeds may be present on the field at the time of application and pose a risk. Therefore, chronic risks to mammals feeding at the application site are limited to those that consume terrestrial invertebrates and seeds. For chronic dose-based risk, a small mammal consuming terrestrial invertebrates results in RQs ranging from 32.65 to 241.60 while a large mammal consuming terrestrial invertebrates results in RQs ranging from 14.96 to 110.70. These RQs are well above the LOC and are still exceeded if the LOAEC value of 200 mg/kg-diet is used to estimate risk (RQs ranging from 8.15 to 60.35 for small insectivores and from 3.73 to 27.64 for large insectivores).

Off Field/Drift Exposure Analysis

In addition to the risk to birds and mammals that inhabit the treated field, there is also a potential for exposure via spray drift onto adjacent habitat. Unlike exposure on the treated field, off field exposure may occur from consumption of plant foliage as well as seeds and arthropods. This analysis is based on consumption of short grass, the food item with the greatest predicted residues. The following assessment considers the risk to birds and mammals exposed to EPTC residues on feed items from spray drift. Without label language to restrict to a specific droplet size, both very-fine/fine and fine to med/coarse were modeled (**Table 50** and **Table 51**). Because acute risks are not likely from on field exposure, this analysis focuses on chronic risk.

Table 50. Distance from edge of field where risk extends from drift for maximum application rate¹ (AgDRIFT v 2.1.1)

Taxa	Boom Height ²	Droplet Size	Chronic Dose-Based Exposure (ft)	Chronic Dietary-Based Exposure (ft)
Birds	Low	Very Fine	-	14
Birds	Low	Med Coarse	-	4
Birds	High	Very Fine	-	43
Birds	High	Med Coarse	-	8
Mammals	Low	Very Fine	655-1000	71
Mammals	Low	Med Coarse	361-1000	27
Mammals	High	Very Fine	1000-1000	166
Mammals	High	Med Coarse	524-1000	46

- endpoint not available to calculate drift distance

¹ Based on max application rate for ornamentals (14.8 lb a.i./), ground application

² Low boom height = 0.5 m, high boom height = 1.3 m

Table 51. Distance from edge of field where risk extends from drift for minimum application rate¹ (AgDRIFT v 2.1.1)

Taxa	Boom Height ²	Droplet Size	Chronic Dose-Based Exposure (ft)	Chronic Dietary-Based Exposure (ft)
Birds	Low	Very Fine	-	1
Birds	Low	Med Coarse	-	0
Birds	High	Very Fine	-	4
Birds	High	Med Coarse	-	0
Mammals	Low	Very Fine	88-253	9
Mammals	Low	Med Coarse	34-118	2
Mammals	High	Very Fine	198-469	29
Mammals	High	Med Coarse	57-184	5

- endpoint not available to calculate drift distance

¹ Based on max application rate for ornamentals (2.0 lb a.i./), ground application

² Low boom height = 0.5 m, high boom height = 1.3 m

Off Field/AERSCREEN Exposure Analysis

Because volatilization is one of the primary dissipation pathways for EPTC, there is a potential for exposure from deposition of volatilized material onto adjacent habitat. The following assessment considers the risk to birds and mammals exposed to EPTC residues on feed items from deposition of volatilized material.

The total edge of field deposition calculated in **Section 2.5.4** was compared to the acute, sub-acute, and chronic toxicity endpoints, expressed in lb/A, to determine whether risks from vapor deposition may extend beyond the field by calculating RQs (**Table 52**). Based on this analysis, there is a potential for acute risks to birds and chronic risk to mammals from exposure to deposition of volatilized EPTC on dietary items for both the 2 lb/A and 6 lb/A application rates evaluated.

Table 52. RQs for Birds and Mammals Exposed to EPTC through Vapor Phase Deposition

Organism Size	Application Rate = 2.0 lb/A				Application Rate 6.0 lb/A			
	24-hr Deposition at Edge of Field = 0.17 lb/A				24-hr Deposition at Edge of Field = 0.51 lb/A			
	Acute Oral Exposure	Sub-Acute Dietary Exposure	Chronic Oral Exposure	Chronic Dietary Exposure	Acute Oral Exposure	Sub-Acute Dietary Exposure	Chronic Oral Exposure	Chronic Dietary Exposure
Birds								
Small	0.79	0.08	--	0.17	2.36	0.25	--	0.51
Medium	0.62		--		1.85		--	
Large	0.44		--		1.31		--	
Mammals								
Small	0.13	--	1.86	0.82	0.38	--	5.57	2.45
Medium	0.16		2.29		0.47		6.88	
Large	0.36		5.31		1.09		15.92	

The inhalation effects on birds and mammals from volatile EPTC were evaluated using the AERSCREEN 1-hour maximum EPTC concentration (mg/m³) as the theoretical saturated vapor concentration in the STIR model (**Table 53**). The STIR modeling used the following toxicity values for birds (Lowest Bird Oral LD₅₀=1000 mg/kg bw; Mineau Scaling Factor=1.15; Bird Weight=1.58 kg) and mammals (Lowest Rat Oral LD₅₀=1465 mg/kg bw; Lowest Rat Inhalation LC₅₀ =3.8; Duration of Rat Inhalation Study=4 hours; Rat Weight=0.35 kg). This analysis indicates there is potential for acute listed LOC exceedances for sensitive birds (RQ=0.13 to 0.4124) at 2 lb/A and 6 lb/A application rates. There are no exceedances of levels of concern from EPTC inhalation for mammals.

Table 53. RQs for Birds and Mammals Exposed to EPTC through Vapor Phase Deposition

STIR Model OUTPUT	Avian (0.020 kg)		Mammalian (0.015 kg)	
Maximum Vapor Concentration from AERSCREEN (mg/m ³)	11.2	34.2	11.2	34.2
Maximum 1-hour Vapor Inhalation Dose (mg/kg)	1.4079	4.2991	1.7697	5.4041
Adjusted Inhalation LD ₅₀	10.4234	10.4234	226.2322	226.2322
Ratio of Vapor Dose to Adjusted Inhalation LD ₅₀	0.1351	0.4124	0.0078	0.0239

Terrestrial Invertebrates (Honey Bees)

As indicated above, the existing Tier 1 assessment indicates that the LOC is exceeded for individual adult bees from the acute contact route.

Currently, Tier 1 (laboratory) toxicity data for bees are available with EPTC for acute contact exposures with adult bees. No Tier 1 data are available for quantifying the acute and chronic toxicity of EPTC to larval bees. Furthermore, no Tier 1 data are available to evaluate the chronic toxicity to adult bees. Therefore, the following Tier 1 toxicity data would allow for a complete evaluation of effects of EPTC to bees, including solitary bees.

- Acute toxicity (single dose) to larval bees (OECD 237)
- Acute oral toxicity to adult bees
- 21-d chronic toxicity (repeat dose) to larval bees (OECD draft guideline available)⁹
- 10-d chronic toxicity to adult bees (OECD draft guideline available).¹⁰

Terrestrial Plants

The risk profile for terrestrial plants exposed to EPTC is provided in **Table 54** below. Based on the TerrPlant results, risk is expected for plants exposed to EPTC via runoff and spray drift to dry or semi-aquatic areas. Risk is not anticipated for plants exposed to EPTC via spray drift alone. In the seedling emergence study, the most sensitive monocot species was ryegrass based on survival, with NOAEC and IC₂₅ values of 0.28 and 0.174 lb a.i./A, respectively, and the most sensitive dicot species was lettuce based on dry weight, with NOAEC and IC₂₅ values of 0.28 and 0.456 lb a.i./A, respectively. In the vegetative vigor study, the most sensitive monocot species

⁹ Available at:

http://www.oecd.org/env/ehs/testing/Honeybee%20larval%20rep%20expo_REV%20following%20April%202015%20expert%20meeting_Draft%202020%20July%202015.pdf

¹⁰ Available at:

https://www.oecd.org/env/ehs/testing/Draft%20TG%2010d%20Honeybee%20feeding_Feb%202016.pdf

was ryegrass based on dry weight, with NOAEC and IC₂₅ values of 0.97 and 4.07 lb a.i./A, respectively, and the most sensitive dicot species was soybean based on dry weight, with NOAEC and IC₂₅ values of 2.00 and 6.02 lb a.i./A, respectively.

However, as described above, previously submitted seedling emergence (MRIDs 42120802 and 43217101) and vegetative vigor (MRID 42120802) studies are available for use in characterization. RQs calculated using the more sensitive qualitative endpoints suggest that there may be species that are particularly sensitive to EPTC and confirm the potential risk concerns for plants. Maximum RQ values for listed and non-listed monocots are 524.17 and 503.20, respectively, and for listed and non-listed dicots are 215.66 and 29.03, respectively.

Table 54. Summary of Terrestrial Plant Risk Profile for EPTC¹

Exposure	Monocot RQ	Dicot
Quantitative Endpoints²		
Listed	26.96	26.96
Non-listed	43.38	16.55
Qualitative Endpoints³		
Listed	524.17	215.66
Non-listed	503.20	29.03

RQ values based on the RQs derived using TerrPlant associated with use on ornamentals; see Risk Estimation **Section 5.1** for derivation of these RQ values
Bolded values represent LOC exceedances
¹ Based on max application rate for ornamentals (14.8 lb a.i./)
² Seedling emergence and vegetative vigor endpoints from MRIDs 49534201 and 49534202, respectively
³ Seedling emergence and vegetative vigor endpoints from MRID 42120802

While the results of TerrPlant suggest that exposure via spray drift alone is not a concern for monocots or dicots, an analysis of drift using AgDRIFT suggests that risks may extend as far as the limits of the model (1000 ft) for certain sensitive species. Tier 1 AgDrift analysis for ground spray were estimated for ground applications of 2 and 14.8 lbs ai/A at a low boom height and a very fine to fine droplet spectrum. Results of the AgDRIFT analysis are presented in **Table 55** and **Table 56** for the maximum and minimum application rates of EPTC, respectively.

Table 55. Distance from edge of field where risk extends from drift for maximum application rate¹

Species	Seedling Emergence		Vegetative Vigor	
	Listed Species (ft)	Non listed Species (ft)	Listed Species (ft)	Non listed Species (ft)
Quantitative Endpoints²				
Cabbage	15	8	9	4
Corn	16	7	4	-
Lettuce	130	86	4	-
Oat	126	151	9	-
Onion	305	78	4	< 4

Ryegrass	130	193	44	10
Soybean	48	37	22	6
Sugarbeet	56	5	4	< 4
Tomato	14	9	4	-
Qualitative Endpoints³				
Purple nutsedge	1000	1000	-	-
Morning glory	721	138	-	-
Winter wheat	-	-	342	159
Velvet leaf	-	-	349	22
- endpoint not available to calculate drift distance				
¹ Based on max application rate for ornamentals (14.8 lb a.i./), ground application, low boom height (0.5 m); very fine to fine droplet spectrum				
² Seedling emergence and vegetative vigor endpoints from MRIDs 49534201 and 49534202, respectively				
³ Seedling emergence and vegetative vigor endpoints from MRID 42120802				

Table 56. Distance from edge of field where risk extends from drift for minimum application rate¹

Species	Seedling Emergence		Vegetative Vigor	
	Listed Species (ft)	Non listed Species (ft)	Listed Species (ft)	Non listed Species (ft)
Quantitative Endpoints²				
Cabbage	0	0	0	0
Corn	0	0	0	-
Lettuce	6	3	0	-
Oat	6	8	0	-
Onion	19	3	0	0
Ryegrass	6	11	1	0
Soybean	1	1	0	0
Sugarbeet	2	0	0	0
Tomato	0	0	0	-
Qualitative Endpoints³				
Purple nutsedge	140	134	-	-
Morning glory	57	7	-	-
Winter wheat	-	-	22	8
Velvet leaf	-	-	23	0
- endpoint not available to calculate drift distance				
¹ Based on max application rate for castor bean and cotton (2 lb a.i./), ground application, low boom height (0.5 m); very fine to fine droplet spectrum				
² Seedling emergence and vegetative vigor endpoints from MRIDs 49534201 and 49534202, respectively				
³ Seedling emergence and vegetative vigor endpoints from MRID 42120802				

4.4 Federally Threatened and Endangered (Listed) Species of Concern

Consistent with EPA's responsibility under the Endangered Species Act (ESA), the Agency will evaluate risks to federally listed threatened and endangered (listed) species from registered uses of pesticides in accordance with the Joint Interim Approaches developed to implement the recommendations of the April 2013 National Academy of Sciences (NAS) report, *Assessing Risks*

to Endangered and Threatened Species from Pesticides. The NAS report outlines recommendations on specific scientific and technical issues related to the development of pesticide risk assessments that EPA and the Services must conduct in connection with their obligations under the ESA and FIFRA. EPA will address concerns specific to EPTC in connection with the development of its final registration review decision for EPTC.

In November 2013, EPA, the U.S. Fish and Wildlife Service, National Marine Fisheries (the Services), and USDA released a white paper containing a summary of their joint Interim Approaches for assessing risks to listed species from pesticides. These Interim Approaches were developed jointly by the agencies in response to the NAS recommendations, and reflect a common approach to risk assessment shared by the agencies as a way of addressing scientific differences between the EPA and the Services. Details of the joint Interim Approaches are contained in the November 1, 2013 white paper, Interim Approaches for National-Level Pesticide Endangered Species Act Assessments Based on the Recommendations of the National Academy of Sciences April 2013 Report.

Given that the agencies are continuing to develop and work toward implementation of the Interim Approaches to assess the potential risks of pesticides to listed species and their designated critical habitat, this ecological problem formulation supporting the Preliminary Work Plan for EPTC does not describe the specific ESA analysis, including effects determinations for specific listed species or designated critical habitat, to be conducted during registration review. While the agencies continue to develop a common method for ESA analysis, the planned risk assessment for the registration review of EPTC will describe the level of ESA analysis completed for this particular registration review case. This assessment will allow EPA to focus its future evaluations on the types of species where the potential for effects exists, once the scientific methods being developed by the agencies have been fully vetted. Once the agencies have fully developed and implemented the scientific methods necessary to complete risk assessments for listed species and their designated critical habitats, these methods will be applied to subsequent analyses of EPTC as part of completing this registration review.

4.5 *Endocrine Disruptor Screening Program*

As required by FIFRA and FFDCA, EPA reviews numerous studies to assess potential adverse outcomes from exposure to chemicals. Collectively, these studies include acute, subchronic and chronic toxicity, including assessments of carcinogenicity, neurotoxicity, developmental, reproductive, and general or systemic toxicity. These studies include endpoints which may be susceptible to endocrine influence, including effects on endocrine target organ histopathology, organ weights, estrus cyclicity, sexual maturation, fertility, pregnancy rates, reproductive loss, and sex ratios in offspring. For ecological hazard assessments, EPA evaluates acute tests and chronic studies that assess growth, developmental and reproductive effects in different taxonomic groups. As part of Problem Formulation for the Registration review of EPTC, EPA reviewed these data and selected the most sensitive endpoints for relevant risk assessment scenarios from the existing hazard database. However, as required by FFDCA section 408(p),

EPTC is subject to the endocrine screening part of the Endocrine Disruptor Screening Program (EDSP).

EPA has developed the EDSP to determine whether certain substances (including pesticide active and other ingredients) may have an effect in humans or wildlife similar to an effect produced by a “naturally occurring estrogen, or other such endocrine effects as the Administrator may designate.” The EDSP employs a two-tiered approach to making the statutorily required determinations. Tier 1 consists of a battery of 11 screening assays to identify the potential of a chemical substance to interact with the estrogen, androgen, or thyroid (E, A, or T) hormonal systems. Chemicals that go through Tier 1 screening and are found to have the potential to interact with E, A, or T hormonal systems will proceed to the next stage of the EDSP where EPA will determine which, if any, of the Tier 2 tests are necessary based on the available data. Tier 2 testing is designed to identify any adverse endocrine-related effects caused by the substance, and establish a dose-response relationship between the dose and the E, A, or T effect.

Under FFDCA section 408(p), the Agency must screen all pesticide chemicals. Between October 2009 and February 2010, EPA issued test orders/data call-ins for the first group of 67 chemicals, which contains 58 pesticide active ingredients and 9 inert ingredients. A second list of chemicals identified for EDSP screening was published on June 14, 2013 and includes some pesticides scheduled for registration review and chemicals found in water. Neither of these lists should be construed as a list of known or likely endocrine disruptors.

EPTC is on List 1 for which EPA has received all of the required Tier 1 assay data. The Agency has reviewed all of the assay data received for the appropriate List 1 chemicals and the conclusions of those reviews are available in the chemical-specific public dockets (see DOCKET NUMBER for EPTC). For further information on the status of the EDSP, the policies and procedures, the lists of chemicals, future lists, the test guidelines and the Tier 1 screening battery, please visit our website.¹¹

5.0 Uncertainties and Data Limitations

5.1 *Environmental Fate*

The major uncertainty in assessing aquatic exposure from EPTC applications is modeling the volatilization of EPTC from soil. In order to model volatilization from soil, PWC model scenarios require additional soil property data including the percent sand and percent clay in each soil horizon, temperature at the lowest point in the simulated profile, and soil albedo to allow estimation of pesticide volatilization from soil. The soil volatilization algorithm in PRZM 5 has been quality control and quality assured (QA/QC) using field volatility studies. Modified standard scenarios, however, are not yet available for all PWC standard scenarios. Because all

11 <http://www.epa.gov/endo/>

the standard runoff model scenarios have not been modified to allow direct modeling of volatilization from soil, soil volatilization in the surface water modeling was conducted using the soil metabolism half-life for EPTC ($t_{1/2}=46.33$ days), with no correction (adjustment) in the modeled scenario for volatilized EPTC. This modeling strategy assumes that the EPTC volatilization rate from soil is indirectly accounted for in the soil metabolism half-life of EPTC. To assess the impact of using aerobic soil half for capturing both volatilization and degradation in surface water modeling, EECs from selected surface water scenarios were compared using the indirect and directs modeling approach for consideration of volatilization from soil. Peak EPTC EECs are approximately 0.1 to 7% lower using the indirect soil volatilization method (i.e., volatilization captured in the aerobic soil metabolism half-life) compared to the direct soil volatilization method (mechanistic estimation of soil volatilization). Although there is some underestimation of EECs using the indirect soil volatilization modeling approach, the impact of soil volatilization modeling approaches is not substantially different to alter aquatic exposure estimation for EPTC.

Another uncertainty is quantification of the abiotic hydrolysis half-life for EPTC. EPTC abiotic hydrolysis is very slow. It was described as stable in a 30-day hydrolysis study (MRID 00141373). A re-evaluation of abiotic hydrolysis data provides an estimated half-life of 1,728 days (p-value =0.385) at pH 7. Although the EPTC hydrolysis half-life is estimated from limited data, the use of either stable or 1,728 days as the hydrolysis half-life in PRZM-VVWM modeling does not alter EPTC EECs.

5.2 *Ecological Effects*

There are a number of areas of uncertainty in the aquatic and terrestrial risk assessments. The toxicity assessment for terrestrial and aquatic plants and animals is limited by the number of species tested in the available toxicity studies. Use of toxicity data on representative species does not provide information on the potential variability in susceptibility to acute and chronic exposures.

For each proposed use, the risk assessment is based on the maximum application rate on the proposed label. The frequency at which actual uses approach these maximum scenarios is dependent on the resistance to the pesticide, the timing of applications, and market forces. Exposure and risks could be overestimated if the actual application rates, frequency of application, or number of applications are lower than the input parameters used for the conservative exposure scenario that was modeled. However, if there are conditions under which there is more than one growing season for a crop within a single year, exposure estimates and risk to aquatic and terrestrial organisms could be significantly underestimated.

Furthermore, there is uncertainty regarding the actual toxicity of EPTC to birds on an acute basis; there are no acute studies for which definitive values are available. All acute avian RQs presented in this assessment are considered to be a conservative estimate of risk.

Currently, there are limited studies (*i.e.*, only an acute adult contact study) that measure the toxicity of EPTC to larval honeybees on an acute and chronic basis, as well as adult bees on a chronic basis. These toxicity studies help estimate the risk to a honeybee through the entire life span. The assessment framework describing how each study informs potential exposure and risk is outlined in the Guidance for Assessing Pesticide Risks to Bees. While there is an acute LOC exceedance for adult honey bees based on the available acute contact study, current data for EPTC show minimal toxicity to bees (*i.e.*, adult contact LD₅₀ of >12.09 ug a.i./bee), but data on honey bee larvae and chronic toxicity to adults would be helpful in estimating risk to honeybees in the future.

There is uncertainty in the LD₅₀-per-square foot index for when granular EPTC are applied to the soil surface and incorporated through irrigation. Unlike with physical soil incorporation, no risk assessment method is available to the measure the effect of irrigation on the availability of a toxicant to terrestrial wildlife. Additionally, no information is available to inform on the amount of EPTC remaining in/on the granule after irrigation that non-target animals may still be exposed to. Conservative exposure calculations were made assuming potential exposure to animals shortly after an application, but prior to incorporation or irrigation event. This is expected to overestimate risk after irrigation because much of the residues are expected to leach out of the granules and into the soil.

5.2.1 Terrestrial Exposure Assessment

This risk assessment relies on the best available estimates of environmental fate and physicochemical properties, maximum application rate of EPTC, maximum number of applications, and the shortest interval between applications. However, several uncertainties and model limitations are noted and should be considered in interpreting the results of this terrestrial risk assessment. The 35-day foliar dissipation half-life was used in T-REX calculations. Use of an actual foliar dissipation half-life specific to EPTC could refine the EEC estimates and thus refine the RQs. In addition, all preplant and at plant spray applications of EPTC are required to be incorporated and post emergence applications are required to be via irrigation or directed spray only. These application methods likely reduce the potential for exposure to terrestrial organisms because (1) soil incorporation would chop up and bury much of the sprayed foliage, (2) watering-in may wash much of the residues off the foliage, and (3) spray directed towards the ground may reduce exposure to the crop.

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APPENDIX A. Example T-REX (v.1.5.2) Output for EPTC

Upper Bound Kenaga Residues for RQ Calculation

Chemical Name:	EPTC	
Use	Agricultural Fallow, Corn, Ornamental, Potato	
Formulation	0	
Application Rate	6.1	lbs a.i./acre
Half-life	35	days
Application Interval	0	days
Maximum # Apps./Year	1	
Length of Simulation	1	year
Variable application rates?	no	

Endpoints			
Avian	Mallard duck	LD50 (mg/kg-bw)	1000.00
	Canary	LC50 (mg/kg-diet)	4985.00
	Bobwhite quail	NOAEL(mg/kg-bw)	0.00
	Mallard duck	NOAEC (mg/kg-diet)	242.00
Mammals		LD50 (mg/kg-bw)	1465.00
		LC50 (mg/kg-diet)	0.00
		NOAEL (mg/kg-bw)	2.50
		NOAEC (mg/kg-diet)	50.00

Dietary-based EECs (ppm)	Kenaga Values
Short Grass	1464.00
Tall Grass	671.00
Broadleaf plants	823.50
Fruits/pods/seeds	91.50
Arthropods	573.40

Avian Results

Avian Class	Body Weight (g)	Ingestion (Fdry) (g bw/day)	Ingestion (Fwet) (g/day)	% body wgt consumed	FI (kg-diet/day)
Small	20	5	23	114	2.28E-02
Mid	100	13	65	65	6.49E-02
Large	1000	58	291	29	2.91E-01
	20	5	5	25	5.06E-03

Granivores	100 1000	13 58	14 65	14 6	1.44E-02 6.46E-02
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Avian Body Weight (g)	Adjusted LD50 (mg/kg-bw)
20	519.23
100	661.00
1000	933.69

Dose-based EECs (mg/kg-bw)	Avian Classes and Body Weights (grams)		
	small 20	mid 100	large 1000
Short Grass	1667.35	950.79	425.68
Tall Grass	764.20	435.78	195.10
Broadleaf plants	937.88	534.82	239.45
Fruits/pods	104.21	59.42	26.61
Arthropods	653.05	372.39	166.73
Seeds	23.16	13.21	5.91
Dose-based RQs (Dose-based EEC/adjusted LD50)	Avian Acute RQs Size Class (grams)		
	20	100	1000
Short Grass	3.21	1.44	0.46
Tall Grass	1.47	0.66	0.21
Broadleaf plants	1.81	0.81	0.26
Fruits/pods	0.20	0.09	0.03
Arthropods	1.26	0.56	0.18
Seeds	0.04	0.02	0.01

Dietary-based RQs (Dietary-based EEC/LC50 or NOAEC)	RQs	
	Acute	Chronic
Short Grass	0.29	6.05
Tall Grass	0.13	2.77
Broadleaf plants	0.17	3.40
Fruits/pods/seeds	0.02	0.38
Arthropods	0.12	2.37

Mammalian Results

Mammalian Class	Body Weight	Ingestion (Fdry) (g bwt/day)	Ingestion (Fwet) (g/day)	% body wgt consumed	FI (kg-diet/day)
Herbivores/ insectivores	15 35 1000	3 5 31	14 23 153	95 66 15	1.43E-02 2.31E-02 1.53E-01
	15	3	3	21	3.18E-03

Granivores	35 1000	5 31	5 34	15 3	5.13E-03 3.40E-02
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Mammalian Class	Body Weight	Adjusted LD50	Adjusted NOAEL
Herbivores/ insectivores	15	3219.82	5.49
	35	2605.18	4.45
	1000	1126.82	1.92
Granivores	15	3219.82	5.49
	35	2605.18	4.45
	1000	1126.82	1.92

Dose-Based EECs (mg/kg-bw)	Mammalian Classes and Body weight (grams)		
	15	35	1000
	1395.81	964.69	223.67
Short Grass	639.75	442.15	102.51
Tall Grass	785.14	542.64	125.81
Broadleaf plants	87.24	60.29	13.98
Fruits/pods	546.69	377.84	87.60
Arthropods	19.39	13.40	3.11
Seeds			

Dose-based RQs (Dose-based EEC/LD50 or NOAEL)	Small mammal		Medium mammal		Large mammal	
	15	grams	35	grams	1000	grams
	Acute	Chronic	Acute	Chronic	Acute	Chronic
Short Grass	0.43	254.03	0.37	216.99	0.20	116.32
Tall Grass	0.20	116.43	0.17	99.46	0.09	53.31
Broadleaf plants	0.24	142.89	0.21	122.06	0.11	65.43
Fruits/pods	0.03	15.88	0.02	13.56	0.01	7.27
Arthropods	0.17	99.50	0.15	84.99	0.08	45.56
Seeds	0.01	3.53	0.01	3.01	0.00	1.62

Dietary-based RQs (Dietary-based EEC/LC50 or NOAEC)	Mammal RQs	
	Acute	Chronic
Short Grass	#DIV/0!	29.28
Tall Grass	#DIV/0!	13.42
Broadleaf plants	#DIV/0!	16.47
Fruits/pods/seeds	#DIV/0!	1.83
Arthropods	#DIV/0!	11.47

APPENDIX B. Example TerrPlant (v.1.2.2) Output for EPTC

TerrPlant v. 1.2.2

Table 1. Chemical Identity.

Chemical Name	EPTC
PC code	41401
Use	EC1
Application Method	Ground
Application Form	Spray
Solubility in Water (ppm)	370

Table 2. Input parameters used to derive EECs.

Input Parameter	Symbol	Value	Units
Application Rate	A	12.2	y
Incorporation	I	1	none
Runoff Fraction	R	0.05	none
Drift Fraction	D	0.01	none

Table 3. EECs for EPTC. Units in y.

Description	Equation	EEC
Runoff to dry areas	(A/I)*R	0.61
Runoff to semi-aquatic areas	(A/I)*R*10	6.1
Spray drift	A*D	0.122
Total for dry areas	((A/I)*R)+(A*D)	0.732
Total for semi-aquatic areas	((A/I)*R*10)+(A*D)	6.222

Table 4. Plant survival and growth data used for RQ derivation. Units are in y.

Plant type	Seedling Emergence		Vegetative Vigor	
	EC25	NOAEC	EC25	NOAEC
Monocot	0.174	0.28	4.07	0.97
Dicot	0.456	0.28	6.02	2

Table 5. RQ values for plants in dry and semi-aquatic areas exposed to EPTC through runoff and/or spray drift.*

Plant Type	Listed Status	Dry	Semi-Aquatic	Spray Drift
Monocot	non-listed	4.21	35.76	0.70
Monocot	listed	2.61	22.22	0.44
Dicot	non-listed	1.61	13.64	0.27
Dicot	listed	2.61	22.22	0.44

*If RQ > 1.0, the LOC is exceeded, resulting in potential for risk to that plant group.

APPENDIX C. PWC Model Application Conditions

PWC Model Conditions for EC Formulations

Model Run	Crop	App Date	Single App Rate (kg/ha)	Apps Number	App Interval (days)	Soil Incorporation Depth (cm)
1	Ag_Fallo	-12	6.72	1	NA	10.16
2	Alfalfa	-12	4.48	1	NA	5
3		9/15	4.48	1	NA	5
4		20	3.36	4	30	5
5	Almond	1/15	3.47	2	30	5
6	DryBean	0	3.47	1	NA	7.5
7		-12.00	2.24	3	-12	5
8		-12.00	3.47(2) 0.56(1)	3	-12	5
9		-12.00	4.48(2) 0.672(1)	3	-12	5
10	Carrot	-15.00	3.36	3	-15	5
11	CastorBean	-12.00	2.24	1	NA	5
12		12.00	2.24	4	12	5
13	Citrus	5/15	3.472	1	NA	5
14		5/15	6.914	1	NA	5
15	Clover	-12.00	4.48	1	NA	7.5
16	Conifer	5/15	6.72	1	NA	5
17	Corn	12.00	6.832	1	NA	5
18		-12.00	6.832	1	NA	5
19	Cotton	-12.00	3.36	1	NA	5
20	Ornamental	5/15	6.944	1	NA	5
21		6/15	16.58	1	NA	15
22	Potato	30.00	1.68	1	NA	2
23		15.00	6.944	1	NA	2
24	IDpotato	5/25;8/15	6.944	2	NA	2
25	MEpotato	5/30;10/1	6.944	2	NA	2
26	Safflower	15.00	3.47	1	NA	5
27		-30.00	3.47	1	NA	5
28	Sugarbeet	-30.00	3.47	1	NA	5
29		10/15	5.15	1	NA	5
30		30.00	5.15	1	NA	5
31	Sunflower	15.00	3.47	1	NA	5
32		10/15	5.152	1	NA	5
33	Tomato	15.00	3.47	1	NA	5
34	Walnut	5/15	3.47	1	NA	5

PWC Model Conditions for Granular Formulations

Model Run	Crop	App Date	Single App Rate (kg/ha)	Apps Number	App Interval (days)	Soil Incorporation Depth (cm)
1	Ag_Fallow	-12	6.72	1	NA	10.16
2	Alfalfa	-12	4.48	1	NA	5
3	Bean	0	4.48	1	NA	5
4		12	4.48	1	NA	5
5		-12	4.48	1	NA	5
6	DryBeans	9/15	5.04	1	NA	5
7	Citrus	5/15	6.72	1	NA	5
8	Conifer	5/15	6.72	1	NA	5
9	Corn	-12	3.36	1	NA	3.79
10	Potato	-30	3.36	1	NA	2
11		10/15	3.36	1	NA	2
12		30	3.36	1	NA	2
13		-30.00	6.72	1	NA	2
14		10/15	6.72	1	NA	2
15		30	6.72	1	NA	2
16	Safflower	30	3.36	1	NA	5
17	Sugarbeet	10/15	5.04	1	NA	5
18	Sunflower	10/15	5.04	1	NA	5

APPENDIX D. AERSCREEN Model Example Input and Output

EXAMPLE AERSCREEN INPUT FILE FOR 6 lbs ai/A

```
** AREA DATA      Rate  Height  Length  Width  Angle  Szinit
**          0.518500E+01  0.0000  569.0000  569.0000  0.0    0.00

** BUILDING DATA  BPIP  Height  Max dim. Min dim. Orient. Direct. Offset
**          N     0.0000  0.0000  0.0000  0.0000  0.0000  0.0000

** MAKEMET DATA  MinT  MaxT Speed  AnemHt Surf Clim Albedo Bowen Length SC FILE
**          250.00 310.00 0.5 10.000 5 1 0.6000 1.5000 0.0100 "NA"

** ADJUST U*    N

** TERRAIN DATA  Terrain  UTM East  UTM North  Zone  Nada  Probe  PROFBASE Use AERMAP elev
**          N     0.0     0.0     0     0     5000.0     0.00     N

** DISCRETE RECEPTORS Discflag  Receptor file
**          N     "NA"

** UNITS/POPULATION  Units  R/U Population  Amb. dist.  Flagpole  Flagpole height
**          M     R     0.     1.000     N     0.00

** FUMIGATION    Inversion Break-up Shoreline Distance  Direct Run AERSCREEN
**          N         N     0.00   -9.0     Y

** DEBUG OPTION   Debug
**          N

** OUTPUT FILE "EPTCFINAL.out"

** Temporal sector: Winter, flow vector: 45 degrees, spatial sector: 1

CO STARTING
  TITLEONE EPTC_Screen
  **      REFINE STAGE 3
  MODELOPT CONC SCREEN FLAT FASTAREA WDEP DDEP
  AVERTIME 1
  POLLUTID EPTC
  RUNORNOT RUN
  ** Define Wesely Seasonal Categories for Each Calendar Month
  GDSEASON 12*1
  ** Define uniform use category 4
  GDLANUSE 36*2
  HALFLIFE 16530
CO FINISHED

SO STARTING
  LOCATION SOURCE AREA    -284.50  -284.50
  SRCPARAM SOURCE  2.1667E-05  0.000  569.000  569.000  0.000  0.000
  **      SrcID Da (cm^2/s) Dw (cm^2/s) RcLipid (s/cm) Henry (Pa-m^3/mol)
  GASDEPOS SOURCE 4.05E-3    5.12E-6    1.70E5    1.09
```

```
** Specify output units for deposition flux (LB/A)
DEPOUNIT 3.212E4 GRAM/M**2-SEC LB/A
SRCGROUP ALL
```

SO FINISHED

RE STARTING

** Fence line receptor

DISCCART	0.71	0.71
----------	------	------

** Refined receptors

DISCCART	246.78	246.78
DISCCART	247.49	247.49
DISCCART	248.19	248.19
DISCCART	248.90	248.90
DISCCART	249.61	249.61
DISCCART	250.32	250.32
DISCCART	251.02	251.02
DISCCART	251.73	251.73
DISCCART	252.44	252.44
DISCCART	253.14	253.14
DISCCART	253.85	253.85
DISCCART	254.56	254.56
DISCCART	255.27	255.27
DISCCART	255.97	255.97
DISCCART	256.68	256.68
DISCCART	257.39	257.39
DISCCART	258.09	258.09
DISCCART	258.80	258.80
DISCCART	259.51	259.51
DISCCART	260.22	260.22
DISCCART	260.92	260.92
DISCCART	261.63	261.63
DISCCART	262.34	262.34
DISCCART	263.04	263.04
DISCCART	263.75	263.75
DISCCART	264.46	264.46
DISCCART	265.17	265.17
DISCCART	265.87	265.87
DISCCART	266.58	266.58
DISCCART	267.29	267.29
DISCCART	267.99	267.99
DISCCART	268.70	268.70
DISCCART	269.41	269.41
DISCCART	270.11	270.11
DISCCART	270.82	270.82
DISCCART	271.53	271.53
DISCCART	272.24	272.24
DISCCART	272.94	272.94
DISCCART	273.65	273.65
DISCCART	274.36	274.36
DISCCART	275.06	275.06
DISCCART	275.77	275.77
DISCCART	276.48	276.48

DISCCART	277.19	277.19
DISCCART	277.89	277.89
DISCCART	278.60	278.60
DISCCART	279.31	279.31
DISCCART	280.01	280.01
DISCCART	280.72	280.72
DISCCART	281.43	281.43
DISCCART	282.14	282.14
DISCCART	282.84	282.84
DISCCART	283.55	283.55
DISCCART	284.26	284.26
DISCCART	284.96	284.96
DISCCART	285.67	285.67
DISCCART	286.38	286.38
DISCCART	287.09	287.09
DISCCART	287.79	287.79
DISCCART	288.50	288.50
DISCCART	289.21	289.21
DISCCART	289.91	289.91
DISCCART	290.62	290.62
DISCCART	291.33	291.33
DISCCART	292.04	292.04
DISCCART	292.74	292.74
DISCCART	293.45	293.45
DISCCART	294.16	294.16
DISCCART	294.86	294.86
DISCCART	295.57	295.57
DISCCART	296.28	296.28
DISCCART	296.98	296.98
DISCCART	297.69	297.69
DISCCART	298.40	298.40
DISCCART	299.11	299.11
DISCCART	299.81	299.81
DISCCART	300.52	300.52
DISCCART	301.23	301.23
DISCCART	301.93	301.93
DISCCART	302.64	302.64
DISCCART	303.35	303.35
DISCCART	304.06	304.06
DISCCART	304.76	304.76
DISCCART	305.47	305.47
DISCCART	306.18	306.18
DISCCART	306.88	306.88
DISCCART	307.59	307.59
DISCCART	308.30	308.30
DISCCART	309.01	309.01
DISCCART	309.71	309.71
DISCCART	310.42	310.42
DISCCART	311.13	311.13
DISCCART	311.83	311.83
DISCCART	312.54	312.54
DISCCART	313.25	313.25
DISCCART	313.96	313.96

```
DISCCART 314.66 314.66
DISCCART 315.37 315.37
DISCCART 316.08 316.08
DISCCART 316.78 316.78
DISCCART 317.49 317.49
```

RE FINISHED

ME STARTING

```
SURFFILE aerscreen_01_01.sfc FREE
PROFILE aerscreen_01_01.pfl FREE
SURFDATA 11111 2010 SCREEN
UAIRDATA 22222 2010 SCREEN
PROFBASE 0.0 METERS
ME WDROTADE 45.0
ME FINISHED
```

OU STARTING

```
RECTABLE 1 FIRST
MAXTABLE ALLAVE 50
```

```
FILEFORM EXP
RANKFILE 1 10 AERSCREEN.FIL
PLOTFILE 1 ALL FIRST AERSCREEN.PLT
```

OU FINISHED

EXAMPLE AERSCREEN OUTPUT FOR 6 lbs ai/A

```
** AREA DATA Rate Height Length Width Angle Szinit
**      0.518500E+01 0.0000 569.0000 569.0000 0.0 0.00

** BUILDING DATA BPIP Height Max dim. Min dim. Orient. Direct. Offset
**      N 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000

** MAKEMET DATA MinT MaxT Speed AnemHt Surf Clim Albedo Bowen Length SC FILE
**      250.00 310.00 0.5 10.000 5 1 0.6000 1.5000 0.0100 "NA"

** ADJUST U* N

** TERRAIN DATA Terrain UTM East UTM North Zone Nada Probe PROFBASE Use AERMAP elev
**      N 0.0 0.0 0 0 5000.0 0.00 N

** DISCRETE RECEPTORS Discflag Receptor file
**      N "NA"

** UNITS/POPULATION Units R/U Population Amb. dist. Flagpole Flagpole height
**      M R 0. 1.000 N 0.00

** FUMIGATION Inversion Break-up Shoreline Distance Direct Run AERSCREEN
**      N N 0.00 -9.0 Y

** DEBUG OPTION Debug
**      N
```

** OUTPUT FILE "EPTCFINAL.out"
** Temporal sector: Winter, flow vector: 45 degrees, spatial sector: 1

CO STARTING
TITLEONE EPTC_Screen
** REFINE STAGE 3
MODELOPT CONC SCREEN FLAT FASTAREA WDEP DDEP
AVERTIME 1
POLLUTID EPTC
RUNORNOT RUN
** Define Wesely Seasonal Categories for Each Calendar Month
GDSEASON 12*1
** Define uniform use category 4
GDLANUSE 36*2
HALFLIFE 16530
CO FINISHED

SO STARTING
LOCATION SOURCE AREA -284.50 -284.50
SRCPARAM SOURCE 2.1667E-05 0.000 569.000 569.000 0.000 0.000
** SrcID Da (cm^2/s) Dw (cm^2/s) RCLipid (s/cm) Henry (Pa-m^3/mol)
GASDEPOS SOURCE 4.05E-3 5.12E-6 1.70E5 1.09
** Specify output units for deposition flux (LB/A)
DEPOUNIT 3.212E4 GRAM/M**2-SEC LB/A
SRCGROUP ALL

SO FINISHED

RE STARTING
** Fence line receptor
DISCCART 0.71 0.71
** Refined receptors
DISCCART 246.78 246.78
DISCCART 247.49 247.49
DISCCART 248.19 248.19
DISCCART 248.90 248.90
DISCCART 249.61 249.61
DISCCART 250.32 250.32
DISCCART 251.02 251.02
DISCCART 251.73 251.73
DISCCART 252.44 252.44
DISCCART 253.14 253.14
DISCCART 253.85 253.85
DISCCART 254.56 254.56
DISCCART 255.27 255.27
DISCCART 255.97 255.97
DISCCART 256.68 256.68
DISCCART 257.39 257.39
DISCCART 258.09 258.09
DISCCART 258.80 258.80
DISCCART 259.51 259.51

DISCCART	260.22	260.22
DISCCART	260.92	260.92
DISCCART	261.63	261.63
DISCCART	262.34	262.34
DISCCART	263.04	263.04
DISCCART	263.75	263.75
DISCCART	264.46	264.46
DISCCART	265.17	265.17
DISCCART	265.87	265.87
DISCCART	266.58	266.58
DISCCART	267.29	267.29
DISCCART	267.99	267.99
DISCCART	268.70	268.70
DISCCART	269.41	269.41
DISCCART	270.11	270.11
DISCCART	270.82	270.82
DISCCART	271.53	271.53
DISCCART	272.24	272.24
DISCCART	272.94	272.94
DISCCART	273.65	273.65
DISCCART	274.36	274.36
DISCCART	275.06	275.06
DISCCART	275.77	275.77
DISCCART	276.48	276.48
DISCCART	277.19	277.19
DISCCART	277.89	277.89
DISCCART	278.60	278.60
DISCCART	279.31	279.31
DISCCART	280.01	280.01
DISCCART	280.72	280.72
DISCCART	281.43	281.43
DISCCART	282.14	282.14
DISCCART	282.84	282.84
DISCCART	283.55	283.55
DISCCART	284.26	284.26
DISCCART	284.96	284.96
DISCCART	285.67	285.67
DISCCART	286.38	286.38
DISCCART	287.09	287.09
DISCCART	287.79	287.79
DISCCART	288.50	288.50
DISCCART	289.21	289.21
DISCCART	289.91	289.91
DISCCART	290.62	290.62
DISCCART	291.33	291.33
DISCCART	292.04	292.04
DISCCART	292.74	292.74
DISCCART	293.45	293.45
DISCCART	294.16	294.16
DISCCART	294.86	294.86
DISCCART	295.57	295.57
DISCCART	296.28	296.28
DISCCART	296.98	296.98

DISCCART	297.69	297.69
DISCCART	298.40	298.40
DISCCART	299.11	299.11
DISCCART	299.81	299.81
DISCCART	300.52	300.52
DISCCART	301.23	301.23
DISCCART	301.93	301.93
DISCCART	302.64	302.64
DISCCART	303.35	303.35
DISCCART	304.06	304.06
DISCCART	304.76	304.76
DISCCART	305.47	305.47
DISCCART	306.18	306.18
DISCCART	306.88	306.88
DISCCART	307.59	307.59
DISCCART	308.30	308.30
DISCCART	309.01	309.01
DISCCART	309.71	309.71
DISCCART	310.42	310.42
DISCCART	311.13	311.13
DISCCART	311.83	311.83
DISCCART	312.54	312.54
DISCCART	313.25	313.25
DISCCART	313.96	313.96
DISCCART	314.66	314.66
DISCCART	315.37	315.37
DISCCART	316.08	316.08
DISCCART	316.78	316.78
DISCCART	317.49	317.49

RE FINISHED

ME STARTING

SURFFILE aerscreen_01_01.sfc FREE
PROFILE aerscreen_01_01.pfl FREE
SURFDATA 11111 2010 SCREEN
UAIRDATA 22222 2010 SCREEN
PROFBASE 0.0 METERS

ME WDROTATE 45.0

ME FINISHED

OU STARTING

RECTABLE 1 FIRST
MAXTABLE ALLAVE 50

FILEFORM EXP
RANKFILE 1 10 AERSCREEN.FIL
PLOTFILE 1 ALL FIRST AERSCREEN.PLT

OU FINISHED

*** SETUP Finishes Successfully ***

*** AERMOD - VERSION 16216r *** *** EPTC_Screen
*** AERMET - VERSION SCREEN *** ***

*** 02/08/17
*** 10:52:21

PAGE 1

*** MODELOPTs: NonDFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

*** MODEL SETUP OPTIONS SUMMARY ***

**Model Is Setup For Calculation of Average CONcentration Values.
**Model Is Setup For Calculation of Dry DEPosition Values.
**Model Is Setup For Calculation of Wet DEPosition Values.

-- DEPOSITION LOGIC --

**GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses DRY DEPLETION. DDPLETE = T
**Model Uses WET DEPLETION. WETDPLT = T

**Model Uses RURAL Dispersion Only.

**Model Allows User-Specified Options:

1. Stack-tip Downwash.
2. Model Assumes Receptors on FLAT Terrain.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. Non-DFAULT Exponential Decay.

**Other Options Specified:

NOCHKD - Suppresses checking of date sequence in meteorology files

FASTAREA - Use hybrid approach to optimize AREA sources;

also applies to LINE sources (formerly TOXICS option)

SCREEN - Use screening option

which forces calculation of centerline values

**Model Assumes No FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: EPTC

**Model Calculates 1 Short Term Average(s) of: 1-HR

**This Run Includes: 1 Source(s); 1 Source Group(s); and 102 Receptor(s)

with: 0 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 0 VOLUME source(s)
and: 1 AREA type source(s)
and: 0 LINE source(s)
and: 0 OPENPIT source(s)
and: 0 BUOYANT LINE source(s) with 0 line(s)

**Model Set To Continue RUNning After the Setup Testing.

**The AERMET Input Meteorological Data Version Date: SCREEN

**Output Options Selected:

Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)

Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)

Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

Model Outputs External File(s) of Ranked Values (RANKFILE Keyword)

NOTE: Option for EXPonential format used in formatted output result files (FILEFORM Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours

m for Missing Hours

b for Both Calm and Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 0.00 ; Decay Coef. = 0.4192E-04 ; Rot. Angle = 45.0

Concentration: Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/M**3

Deposition: Emission Units = GRAM/M**2-SEC ; Emission Rate Unit Factor = 32120.
Output Units = LB/A

**Approximate Storage Requirements of Model = 3.5 MB of RAM.

*** AERMOD - VERSION 16216r *** *** EPTC_Screen *** 02/08/17
*** AERMET - VERSION SCREEN *** *** *** 10:52:21

PAGE 2

*** MODELOPTs: NonDFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

*** AREA SOURCE DATA ***

NUMBER EMISSION RATE COORD (SW CORNER) BASE RELEASE X-DIM Y-DIM ORIENT. INIT.
URBAN EMISSION RATE
SOURCE PART. (USER UNITS X Y ELEV. HEIGHT OF AREA OF AREA OF AREA SZ SOURCE
SCALAR VARY
ID CATS. /METER**2) (METERS) (METERS) (METERS) (METERS) (METERS) (METERS) (DEG.) (METERS)
BY

SOURCE 0 0.21667E-04 -284.5 -284.5 0.0 0.00 569.00 569.00 0.00 0.00 NO

*** AERMOD - VERSION 16216r *** *** EPTC_Screen *** 02/08/17
*** AERMET - VERSION SCREEN *** *** *** 10:52:21
PAGE 3
*** MODELOPTS: NonDFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
-----	-----

ALL SOURCE ,
*** AERMOD - VERSION 16216r *** *** EPTC_Screen *** 02/08/17
*** AERMET - VERSION SCREEN *** *** *** 10:52:21
PAGE 4
*** MODELOPTs: NonDFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

*** SOURCE PARTICULATE/GAS DATA ***

*** SOURCE ID = SOURCE ; SOURCE TYPE = AREA ***

DIFF IN AIR (M^{**2}/SEC) = 0.40E-06

DIFF IN WATER (M**2/SEC) = 0.51E-09

LEAF LIPID RESIST (SEC/M) = 0.17E+08

HENRY'S LAW COEFFICIENT = 0.11E+01

*** AERMOD - VERSION 16216r *** *** EPTC_Screen *** 02/08/17
*** AERMET - VERSION SCREEN *** *** *** 10:52:21
PAGE 5
*** MODELOPTS: NonDEFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

(	0.7,	0.7,	0.0,	0.0,	0.0);	(	246.8,	246.8,	0.0,	0.0,	0.0);
(	247.5,	247.5,	0.0,	0.0,	0.0);	(	248.2,	248.2,	0.0,	0.0,	0.0);
(	248.9,	248.9,	0.0,	0.0,	0.0);	(	249.6,	249.6,	0.0,	0.0,	0.0);
(	250.3,	250.3,	0.0,	0.0,	0.0);	(	251.0,	251.0,	0.0,	0.0,	0.0);
(	251.7,	251.7,	0.0,	0.0,	0.0);	(	252.4,	252.4,	0.0,	0.0,	0.0);
(	253.1,	253.1,	0.0,	0.0,	0.0);	(	253.9,	253.9,	0.0,	0.0,	0.0);
(	254.6,	254.6,	0.0,	0.0,	0.0);	(	255.3,	255.3,	0.0,	0.0,	0.0);
(	256.0,	256.0,	0.0,	0.0,	0.0);	(	256.7,	256.7,	0.0,	0.0,	0.0);

(257.4,	257.4,	0.0,	0.0,	0.0);	(258.1,	258.1,	0.0,	0.0,	0.0);
(258.8,	258.8,	0.0,	0.0,	0.0);	(259.5,	259.5,	0.0,	0.0,	0.0);
(260.2,	260.2,	0.0,	0.0,	0.0);	(260.9,	260.9,	0.0,	0.0,	0.0);
(261.6,	261.6,	0.0,	0.0,	0.0);	(262.3,	262.3,	0.0,	0.0,	0.0);
(263.0,	263.0,	0.0,	0.0,	0.0);	(263.8,	263.8,	0.0,	0.0,	0.0);
(264.5,	264.5,	0.0,	0.0,	0.0);	(265.2,	265.2,	0.0,	0.0,	0.0);
(265.9,	265.9,	0.0,	0.0,	0.0);	(266.6,	266.6,	0.0,	0.0,	0.0);
(267.3,	267.3,	0.0,	0.0,	0.0);	(268.0,	268.0,	0.0,	0.0,	0.0);
(268.7,	268.7,	0.0,	0.0,	0.0);	(269.4,	269.4,	0.0,	0.0,	0.0);
(270.1,	270.1,	0.0,	0.0,	0.0);	(270.8,	270.8,	0.0,	0.0,	0.0);
(271.5,	271.5,	0.0,	0.0,	0.0);	(272.2,	272.2,	0.0,	0.0,	0.0);
(272.9,	272.9,	0.0,	0.0,	0.0);	(273.7,	273.7,	0.0,	0.0,	0.0);
(274.4,	274.4,	0.0,	0.0,	0.0);	(275.1,	275.1,	0.0,	0.0,	0.0);
(275.8,	275.8,	0.0,	0.0,	0.0);	(276.5,	276.5,	0.0,	0.0,	0.0);
(277.2,	277.2,	0.0,	0.0,	0.0);	(277.9,	277.9,	0.0,	0.0,	0.0);
(278.6,	278.6,	0.0,	0.0,	0.0);	(279.3,	279.3,	0.0,	0.0,	0.0);
(280.0,	280.0,	0.0,	0.0,	0.0);	(280.7,	280.7,	0.0,	0.0,	0.0);
(281.4,	281.4,	0.0,	0.0,	0.0);	(282.1,	282.1,	0.0,	0.0,	0.0);
(282.8,	282.8,	0.0,	0.0,	0.0);	(283.6,	283.6,	0.0,	0.0,	0.0);
(284.3,	284.3,	0.0,	0.0,	0.0);	(285.0,	285.0,	0.0,	0.0,	0.0);
(285.7,	285.7,	0.0,	0.0,	0.0);	(286.4,	286.4,	0.0,	0.0,	0.0);
(287.1,	287.1,	0.0,	0.0,	0.0);	(287.8,	287.8,	0.0,	0.0,	0.0);
(288.5,	288.5,	0.0,	0.0,	0.0);	(289.2,	289.2,	0.0,	0.0,	0.0);
(289.9,	289.9,	0.0,	0.0,	0.0);	(290.6,	290.6,	0.0,	0.0,	0.0);
(291.3,	291.3,	0.0,	0.0,	0.0);	(292.0,	292.0,	0.0,	0.0,	0.0);
(292.7,	292.7,	0.0,	0.0,	0.0);	(293.4,	293.4,	0.0,	0.0,	0.0);
(294.2,	294.2,	0.0,	0.0,	0.0);	(294.9,	294.9,	0.0,	0.0,	0.0);
(295.6,	295.6,	0.0,	0.0,	0.0);	(296.3,	296.3,	0.0,	0.0,	0.0);
(297.0,	297.0,	0.0,	0.0,	0.0);	(297.7,	297.7,	0.0,	0.0,	0.0);
(298.4,	298.4,	0.0,	0.0,	0.0);	(299.1,	299.1,	0.0,	0.0,	0.0);
(299.8,	299.8,	0.0,	0.0,	0.0);	(300.5,	300.5,	0.0,	0.0,	0.0);
(301.2,	301.2,	0.0,	0.0,	0.0);	(301.9,	301.9,	0.0,	0.0,	0.0);
(302.6,	302.6,	0.0,	0.0,	0.0);	(303.4,	303.4,	0.0,	0.0,	0.0);
(304.1,	304.1,	0.0,	0.0,	0.0);	(304.8,	304.8,	0.0,	0.0,	0.0);
(305.5,	305.5,	0.0,	0.0,	0.0);	(306.2,	306.2,	0.0,	0.0,	0.0);
(306.9,	306.9,	0.0,	0.0,	0.0);	(307.6,	307.6,	0.0,	0.0,	0.0);
(308.3,	308.3,	0.0,	0.0,	0.0);	(309.0,	309.0,	0.0,	0.0,	0.0);

*** AERMOD - VERSION 16216r *** *** EPTC_Screen *** 02/08/17
*** AERMET - VERSION SCREEN *** *** *** 10:52:21
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*** MODELOPTS: NonDFAUL CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

$$\begin{array}{ccccccccc}
(309.7, & 309.7, & 0.0, & 0.0, & 0.0); & (310.4, & 310.4, & 0.0, & 0.0, & 0.0); \\
(311.1, & 311.1, & 0.0, & 0.0, & 0.0); & (311.8, & 311.8, & 0.0, & 0.0, & 0.0); \\
(312.5, & 312.5, & 0.0, & 0.0, & 0.0); & (313.2, & 313.2, & 0.0, & 0.0, & 0.0); \\
(314.0, & 314.0, & 0.0, & 0.0, & 0.0); & (314.7, & 314.7, & 0.0, & 0.0, & 0.0); \\
(315.4, & 315.4, & 0.0, & 0.0, & 0.0); & (316.1, & 316.1, & 0.0, & 0.0, & 0.0); \\
(316.8, & 316.8, & 0.0, & 0.0, & 0.0); & (317.5, & 317.5, & 0.0, & 0.0, & 0.0);
\end{array}$$

*** AERMOD - VERSION 16216r *** *** EPTC_Screen *** 02/08/17
*** AERMET - VERSION SCREEN *** *** *** 10:52:21
PAGE 7
*** MODELOPTS: NonDFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** AERMOD - VERSION 16216r *** *** EPTC_Screen
*** AERMET - VERSION SCREEN *** ***

*** 02/08/17
*** 10:52:21

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*** MODELOPTs: NonDFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: aerscreen_01_01.sfc

Met Version: SCREEN

Profile file: aerscreen_01_01.pfl

Surface format: FREE

Profile format: FREE

Surface station no.: 11111

Upper air station no.: 22222

Name: SCREEN

Name: SCREEN

Year: 2010

Year: 2010

First 24 hours of scalar data

YR MO DY HR HO U* W* DT/DZ ZICNV ZIMCH M-O LEN ZO BOWEN ALB REF WS WD HT REF TA HT
IPCOD PRATE RH SFCP CCVR

10 01 01 01 -0.2 0.014 -9.000 0.020 -999. 4. 1.0 0.01 1.50 0.60 0.50 270. 10. 250.0 2. 1 1.00 1. 1. 1
10 01 02 01 -0.2 0.014 -9.000 0.020 -999. 20. 1.0 0.01 1.50 0.60 0.50 270. 10. 250.0 2. 1 1.00 1. 1.
2
10 01 03 01 -0.2 0.014 -9.000 0.020 -999. 40. 1.0 0.01 1.50 0.60 0.50 270. 10. 250.0 2. 1 1.00 1. 1.
3
10 01 04 01 -0.2 0.014 -9.000 0.020 -999. 4. 1.1 0.01 1.50 0.60 0.50 270. 10. 250.0 2. 1 1.00 1. 2. 1
10 01 05 01 -0.2 0.014 -9.000 0.020 -999. 20. 1.1 0.01 1.50 0.60 0.50 270. 10. 250.0 2. 1 1.00 1. 2.
2
10 01 06 01 -0.2 0.014 -9.000 0.020 -999. 40. 1.1 0.01 1.50 0.60 0.50 270. 10. 250.0 2. 1 1.00 1. 2.
3
10 01 07 01 -0.1 0.014 -9.000 0.020 -999. 4. 3.3 0.01 1.50 0.60 0.50 270. 10. 250.0 2. 1 1.00 1. 3. 1
10 01 08 01 -0.1 0.014 -9.000 0.020 -999. 20. 3.3 0.01 1.50 0.60 0.50 270. 10. 250.0 2. 1 1.00 1. 3.
2
10 01 09 01 -0.1 0.014 -9.000 0.020 -999. 40. 3.3 0.01 1.50 0.60 0.50 270. 10. 250.0 2. 1 1.00 1. 3.
3
10 01 10 01 -0.2 0.014 -9.000 0.020 -999. 4. 1.2 0.01 1.50 0.60 0.50 270. 10. 310.0 2. 1 1.00 3. 1. 1
10 01 11 01 -0.2 0.014 -9.000 0.020 -999. 20. 1.2 0.01 1.50 0.60 0.50 270. 10. 310.0 2. 1 1.00 3. 1.
2
10 01 12 01 -0.2 0.014 -9.000 0.020 -999. 40. 1.2 0.01 1.50 0.60 0.50 270. 10. 310.0 2. 1 1.00 3. 1.
3
10 01 13 01 -0.2 0.014 -9.000 0.020 -999. 4. 1.3 0.01 1.50 0.60 0.50 270. 10. 310.0 2. 1 1.00 3. 2. 1
10 01 14 01 -0.2 0.014 -9.000 0.020 -999. 20. 1.3 0.01 1.50 0.60 0.50 270. 10. 310.0 2. 1 1.00 3. 2.
2
10 01 15 01 -0.2 0.014 -9.000 0.020 -999. 40. 1.3 0.01 1.50 0.60 0.50 270. 10. 310.0 2. 1 1.00 3. 2.
3
10 01 16 01 -0.1 0.014 -9.000 0.020 -999. 4. 3.7 0.01 1.50 0.60 0.50 270. 10. 310.0 2. 1 1.00 3. 3. 1
10 01 17 01 -0.1 0.014 -9.000 0.020 -999. 20. 3.7 0.01 1.50 0.60 0.50 270. 10. 310.0 2. 1 1.00 3. 3.
2
10 01 18 01 -0.1 0.014 -9.000 0.020 -999. 40. 3.7 0.01 1.50 0.60 0.50 270. 10. 310.0 2. 1 1.00 3. 3.
3
10 01 19 01 -0.2 0.014 -9.000 0.020 -999. 4. 1.5 0.01 1.50 0.60 0.50 270. 10. 250.0 2. 1 3.00 1. 1. 1
10 01 20 01 -0.2 0.014 -9.000 0.020 -999. 20. 1.5 0.01 1.50 0.60 0.50 270. 10. 250.0 2. 1 3.00 1. 1.
2

10 01 21 01 -0.2 0.014 -9.000 0.020 -999. 40. 1.5 0.01 1.50 0.60 0.50 270. 10. 250.0 2. 1 3.00 1. 1.
 3
 10 01 22 01 -0.1 0.014 -9.000 0.020 -999. 4. 1.6 0.01 1.50 0.60 0.50 270. 10. 250.0 2. 1 3.00 1. 2. 1
 10 01 23 01 -0.1 0.014 -9.000 0.020 -999. 20. 1.6 0.01 1.50 0.60 0.50 270. 10. 250.0 2. 1 3.00 1. 2.
 2
 10 01 24 01 -0.1 0.014 -9.000 0.020 -999. 40. 1.6 0.01 1.50 0.60 0.50 270. 10. 250.0 2. 1 3.00 1. 2.
 3

First hour of profile data

YR MO DY HR HEIGHT F WDIR WSPD AMB_TMP sigmaA sigmaW sigmaV
 10 01 01 01 10.0 1 270. 0.50 250.0 99.0 -99.00 -99.00

F indicates top of profile (=1) or below (=0)

*** AERMOD - VERSION 16216r *** *** EPTC_Screen *** 02/08/17
 *** AERMET - VERSION SCREEN *** *** *** 10:52:21
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 *** MODELOPTs: NonDEFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
 RURAL

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL

INCLUDING SOURCE(S): SOURCE ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF EPTC IN MICROGRAMS/M***3 **

X-COORD (M) (YYMMDDHH)	Y-COORD (M) (YYMMDDHH)	CONC (YYMMDDHH)	X-COORD (M) (YYMMDDHH)	Y-COORD (M) (YYMMDDHH)	CONC (YYMMDDHH)
---------------------------	---------------------------	--------------------	---------------------------	---------------------------	--------------------

0.71	0.71	26579.01025 (10010101)	246.78	246.78	33368.61758 (10010101)
247.49	247.49	33384.70311 (10010101)	248.19	248.19	33400.54788 (10010101)
248.90	248.90	33416.60462 (10010101)	249.61	249.61	33432.64692 (10010101)
250.32	250.32	33448.67480 (10010101)	251.02	251.02	33464.46285 (10010101)
251.73	251.73	33480.46219 (10010101)	252.44	252.44	33496.44720 (10010101)
253.14	253.14	33512.19257 (10010101)	253.85	253.85	33528.14871 (10010101)
254.56	254.56	33544.09063 (10010101)	255.27	255.27	33560.01836 (10010101)
255.97	255.97	33575.70789 (10010101)	256.68	256.68	33591.60754 (10010101)
257.39	257.39	33607.49308 (10010101)	258.09	258.09	33623.14112 (10010101)
258.80	258.80	33638.99877 (10010101)	259.51	259.51	33654.84241 (10010101)
260.22	260.22	33670.67208 (10010101)	260.92	260.92	33686.26515 (10010101)
261.63	261.63	33702.06716 (10010101)	262.34	262.34	33717.85529 (10010101)
263.04	263.04	33733.40749 (10010101)	263.75	263.75	33749.16815 (10010101)
264.46	264.46	33764.91501 (10010101)	265.17	265.17	33780.64812 (10010101)
265.87	265.87	33796.14619 (10010101)	266.58	266.58	33811.85205 (10010101)
267.29	267.29	33827.54425 (10010101)	267.99	267.99	33843.00207 (10010101)
268.70	268.70	33858.66721 (10010101)	269.41	269.41	33874.31876 (10010101)
270.11	270.11	33889.73660 (10010101)	270.82	270.82	33905.36126 (10010101)
271.53	271.53	33920.97244 (10010101)	272.24	272.24	33936.57014 (10010101)
272.94	272.94	33951.93500 (10010101)	273.65	273.65	33967.50605 (10010101)

274.36	274.36	33983.06372 (10010101)	275.06	275.06	33998.38920 (10010101)
275.77	275.77	34013.92038 (10010101)	276.48	276.48	34029.43827 (10010101)
277.19	277.19	34044.94289 (10010101)	277.89	277.89	34060.21618 (10010101)
278.60	278.60	34075.69454 (10010101)	279.31	279.31	34091.15972 (10010101)
280.01	280.01	34106.39421 (10010101)	280.72	280.72	34121.83329 (10010101)
281.43	281.43	34137.25928 (10010101)	282.14	282.14	34152.67220 (10010101)
282.84	282.84	34167.85526 (10010101)	283.55	283.55	34183.24231 (10010101)
284.26	284.26	34198.61636 (10010101)	284.96	284.96	34157.62511 (10010101)
285.67	285.67	32880.35535 (10010101)	286.38	286.38	31955.59575 (10010101)
287.09	287.09	31191.61423 (10010101)	287.79	287.79	30600.46278 (10010101)
288.50	288.50	30099.27328 (10010101)	289.21	289.21	29752.03101 (10010101)
289.91	289.91	29350.09987 (10010101)	290.62	290.62	28986.11501 (10010101)
291.33	291.33	28655.63071 (10010101)	292.04	292.04	28352.63374 (10010101)
292.74	292.74	28075.88578 (10010101)	293.45	293.45	27813.48663 (10010101)
294.16	294.16	27567.09471 (10010101)	294.86	294.86	27337.70268 (10010101)
295.57	295.57	27117.04247 (10010101)	296.28	296.28	26990.76724 (10010101)
296.98	296.98	26783.18532 (10010101)	297.69	297.69	26582.20104 (10010101)
298.40	298.40	26390.58842 (10010101)	299.11	299.11	26207.05092 (10010101)
299.81	299.81	26033.40607 (10010101)	300.52	300.52	25863.42136 (10010101)
301.23	301.23	25699.84807 (10010101)	301.93	301.93	25543.86359 (10010101)

*** AERMOD - VERSION 16216r *** *** EPTC_Screen

*** 02/08/17

*** AERMET - VERSION SCREEN *** ***

*** 10:52:21

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*** MODELOPTs: NonDFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL

INCLUDING SOURCE(S): SOURCE ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF EPTC IN MICROGRAMS/M**3

**

X-COORD (M) (YYMMDDHH)	Y-COORD (M) (YYMMDDHH)	CONC (YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC
302.64	302.64	25390.91016 (10010101)	303.35	303.35	25242.65321 (10010101)
304.06	304.06	25098.83216 (10010101)	304.76	304.76	24961.34991 (10010101)
305.47	305.47	24825.37465 (10010101)	306.18	306.18	24693.11488 (10010101)
306.88	306.88	24566.06457 (10010101)	307.59	307.59	24440.39687 (10010101)
308.30	308.30	24317.77656 (10010101)	309.01	309.01	24198.16435 (10010101)
309.71	309.71	24082.89040 (10010101)	310.42	310.42	23968.52555 (10010101)
311.13	311.13	23855.65192 (10010101)	311.83	311.83	23747.58798 (10010101)
312.54	312.54	23640.18941 (10010101)	313.25	313.25	23534.91711 (10010101)
313.96	313.96	23431.67814 (10010101)	314.66	314.66	23331.79953 (10010101)
315.37	315.37	23232.34782 (10010101)	316.08	316.08	23197.91976 (10010101)
316.78	316.78	23099.85467 (10010101)	317.49	317.49	23002.60167 (10010101)

*** AERMOD - VERSION 16216r *** *** EPTC_Screen
*** AERMET - VERSION SCREEN *** ***

*** 02/08/17
*** 10:52:21

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*** MODELOPTs: NonDEFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

*** THE 1ST HIGHEST 1-HR DRY DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): SOURCE ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** DEPO OF EPTC IN LB/A **

X-COORD (M) Y-COORD (M) DEPO (YYMMDDHH) X-COORD (M) Y-COORD (M) DEPO (YYMMDDHH)

0.71	0.71	0.00932 (100111401)	246.78	246.78	0.01465 (100111101)
247.49	247.49	0.01467 (100111101)	248.19	248.19	0.01468 (100111101)
248.90	248.90	0.01469 (100111101)	249.61	249.61	0.01470 (100111101)
250.32	250.32	0.01472 (100111101)	251.02	251.02	0.01473 (100111101)
251.73	251.73	0.01474 (100111101)	252.44	252.44	0.01475 (100111101)
253.14	253.14	0.01477 (100111101)	253.85	253.85	0.01478 (100111101)
254.56	254.56	0.01479 (100111101)	255.27	255.27	0.01480 (100111101)
255.97	255.97	0.01482 (100111101)	256.68	256.68	0.01483 (100111101)
257.39	257.39	0.01484 (100111101)	258.09	258.09	0.01485 (100111101)
258.80	258.80	0.01487 (100111101)	259.51	259.51	0.01488 (100111101)
260.22	260.22	0.01489 (100111101)	260.92	260.92	0.01490 (100111101)
261.63	261.63	0.01491 (100111101)	262.34	262.34	0.01493 (100111101)
263.04	263.04	0.01494 (100111101)	263.75	263.75	0.01495 (100111101)
264.46	264.46	0.01496 (100111101)	265.17	265.17	0.01498 (100111101)
265.87	265.87	0.01499 (100111101)	266.58	266.58	0.01500 (100111101)
267.29	267.29	0.01501 (100111101)	267.99	267.99	0.01502 (100111101)
268.70	268.70	0.01504 (100111101)	269.41	269.41	0.01505 (100111101)
270.11	270.11	0.01506 (100111101)	270.82	270.82	0.01507 (100111101)
271.53	271.53	0.01508 (100111101)	272.24	272.24	0.01510 (100111101)
272.94	272.94	0.01511 (100111101)	273.65	273.65	0.01512 (100111101)
274.36	274.36	0.01513 (100111101)	275.06	275.06	0.01514 (100111101)
275.77	275.77	0.01516 (100111101)	276.48	276.48	0.01517 (100111101)
277.19	277.19	0.01518 (100111101)	277.89	277.89	0.01519 (100111101)
278.60	278.60	0.01520 (100111101)	279.31	279.31	0.01522 (100111101)
280.01	280.01	0.01523 (100111101)	280.72	280.72	0.01524 (100111101)
281.43	281.43	0.01525 (100111101)	282.14	282.14	0.01526 (100111101)
282.84	282.84	0.01528 (100111101)	283.55	283.55	0.01529 (100111101)
284.26	284.26	0.01543 (100111101)	284.96	284.96	0.01544 (100111101)
285.67	285.67	0.01544 (100111101)	286.38	286.38	0.01544 (100111101)
287.09	287.09	0.01543 (100111101)	287.79	287.79	0.01543 (100111101)
288.50	288.50	0.01543 (100111101)	289.21	289.21	0.01544 (100111101)
289.91	289.91	0.01545 (100111101)	290.62	290.62	0.01545 (100111101)
291.33	291.33	0.01546 (100111101)	292.04	292.04	0.01547 (100111101)
292.74	292.74	0.01548 (100111101)	293.45	293.45	0.01549 (100111101)
294.16	294.16	0.01550 (100111101)	294.86	294.86	0.01551 (100111101)
295.57	295.57	0.01551 (100111101)	296.28	296.28	0.01552 (100111101)
296.98	296.98	0.01553 (100111101)	297.69	297.69	0.01554 (100111101)

298.40	298.40	0.01555 (10011101)	299.11	299.11	0.01555 (10011101)
299.81	299.81	0.01552 (10011101)	300.52	300.52	0.01553 (10011101)
301.23	301.23	0.01553 (10011101)	301.93	301.93	0.01554 (10011101)

*** AERMOD - VERSION 16216r *** *** EPTC_Screen *** 02/08/17
*** AERMET - VERSION SCREEN *** *** *** 10:52:21

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*** MODELOPTs: NonDEFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

*** THE 1ST HIGHEST 1-HR DRY DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): SOURCE ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** DEPO OF EPTC IN LB/A **

X-COORD (M) Y-COORD (M) DEPO (YYMMDDHH) X-COORD (M) Y-COORD (M) DEPO (YYMMDDHH)

302.64	302.64	0.01554 (10011101)	303.35	303.35	0.01555 (10011101)
304.06	304.06	0.01555 (10011101)	304.76	304.76	0.01555 (10011101)
305.47	305.47	0.01555 (10011101)	306.18	306.18	0.01555 (10011101)
306.88	306.88	0.01555 (10011101)	307.59	307.59	0.01555 (10011101)
308.30	308.30	0.01554 (10011101)	309.01	309.01	0.01554 (10011101)
309.71	309.71	0.01553 (10011101)	310.42	310.42	0.01553 (10011101)
311.13	311.13	0.01552 (10011101)	311.83	311.83	0.01551 (10011101)
312.54	312.54	0.01550 (10011101)	313.25	313.25	0.01549 (10011101)
313.96	313.96	0.01548 (10011101)	314.66	314.66	0.01547 (10011101)
315.37	315.37	0.01546 (10011101)	316.08	316.08	0.01544 (10011101)
316.78	316.78	0.01543 (10011101)	317.49	317.49	0.01541 (10011101)

*** AERMOD - VERSION 16216r *** *** EPTC_Screen *** 02/08/17
*** AERMET - VERSION SCREEN *** *** *** 10:52:21

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*** MODELOPTs: NonDFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

*** THE 1ST HIGHEST 1-HR WET DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): SOURCE ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** DEPO OF EPTC IN LB/A **

X-COORD (M) Y-COORD (M) DEPO (YYMMDDHH) X-COORD (M) Y-COORD (M) DEPO (YYMMDDHH)

0.71	0.71	0.00291 (10012501)	246.78	246.78	0.00545 (10012501)
247.49	247.49	0.00546 (10012501)	248.19	248.19	0.00547 (10012501)
248.90	248.90	0.00547 (10012501)	249.61	249.61	0.00548 (10012501)
250.32	250.32	0.00549 (10012501)	251.02	251.02	0.00550 (10012501)

251.73	251.73	0.00550 (10012501)	252.44	252.44	0.00551 (10012501)
253.14	253.14	0.00552 (10012501)	253.85	253.85	0.00553 (10012501)
254.56	254.56	0.00553 (10012501)	255.27	255.27	0.00554 (10012501)
255.97	255.97	0.00555 (10012501)	256.68	256.68	0.00556 (10012501)
257.39	257.39	0.00556 (10012501)	258.09	258.09	0.00557 (10012501)
258.80	258.80	0.00558 (10012501)	259.51	259.51	0.00558 (10012501)
260.22	260.22	0.00559 (10012501)	260.92	260.92	0.00560 (10012501)
261.63	261.63	0.00561 (10012501)	262.34	262.34	0.00561 (10012501)
263.04	263.04	0.00562 (10012501)	263.75	263.75	0.00563 (10012501)
264.46	264.46	0.00564 (10012501)	265.17	265.17	0.00564 (10012501)
265.87	265.87	0.00565 (10012501)	266.58	266.58	0.00566 (10012501)
267.29	267.29	0.00566 (10012501)	267.99	267.99	0.00567 (10012501)
268.70	268.70	0.00568 (10012501)	269.41	269.41	0.00569 (10012501)
270.11	270.11	0.00569 (10012501)	270.82	270.82	0.00570 (10012501)
271.53	271.53	0.00571 (10012501)	272.24	272.24	0.00572 (10012501)
272.94	272.94	0.00572 (10012501)	273.65	273.65	0.00573 (10012501)
274.36	274.36	0.00574 (10012501)	275.06	275.06	0.00575 (10012501)
275.77	275.77	0.00575 (10012501)	276.48	276.48	0.00576 (10012501)
277.19	277.19	0.00577 (10012501)	277.89	277.89	0.00577 (10012501)
278.60	278.60	0.00578 (10012501)	279.31	279.31	0.00579 (10012501)
280.01	280.01	0.00580 (10012501)	280.72	280.72	0.00580 (10012501)
281.43	281.43	0.00581 (10012501)	282.14	282.14	0.00582 (10012501)
282.84	282.84	0.00583 (10012501)	283.55	283.55	0.00583 (10012501)
284.26	284.26	0.00584 (10012501)	284.96	284.96	0.00585 (10012501)
285.67	285.67	0.00585 (10012501)	286.38	286.38	0.00585 (10012501)
287.09	287.09	0.00585 (10012501)	287.79	287.79	0.00584 (10012501)
288.50	288.50	0.00584 (10012501)	289.21	289.21	0.00584 (10012501)
289.91	289.91	0.00584 (10012501)	290.62	290.62	0.00584 (10012501)
291.33	291.33	0.00584 (10012501)	292.04	292.04	0.00584 (10012501)
292.74	292.74	0.00584 (10012501)	293.45	293.45	0.00584 (10012501)
294.16	294.16	0.00584 (10012501)	294.86	294.86	0.00583 (10012501)
295.57	295.57	0.00583 (10012501)	296.28	296.28	0.00583 (10012501)
296.98	296.98	0.00583 (10012501)	297.69	297.69	0.00583 (10012501)
298.40	298.40	0.00583 (10012501)	299.11	299.11	0.00583 (10012501)
299.81	299.81	0.00583 (10012501)	300.52	300.52	0.00583 (10012501)
301.23	301.23	0.00583 (10012501)	301.93	301.93	0.00583 (10012501)

*** AERMOD - VERSION 16216r *** *** EPTC_Screen
*** AERMET - VERSION SCREEN *** ***

*** 02/08/17

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*** MODELOPTs: NonDFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

*** THE 1ST HIGHEST 1-HR WET DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): SOURCE ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** DEPO OF EPTC IN LB/A **

X-COORD (M) Y-COORD (M) DEPO (YYMMDDHH) X-COORD (M) Y-COORD (M) DEPO (YYMMDDHH)

302.64	302.64	0.00583 (10012501)	303.35	303.35	0.00582 (10012501)
304.06	304.06	0.00582 (10012501)	304.76	304.76	0.00582 (10012501)
305.47	305.47	0.00582 (10012501)	306.18	306.18	0.00582 (10012501)
306.88	306.88	0.00582 (10012501)	307.59	307.59	0.00582 (10012501)
308.30	308.30	0.00582 (10012501)	309.01	309.01	0.00582 (10012501)
309.71	309.71	0.00582 (10012501)	310.42	310.42	0.00582 (10012501)
311.13	311.13	0.00582 (10012501)	311.83	311.83	0.00582 (10012501)
312.54	312.54	0.00582 (10012501)	313.25	313.25	0.00581 (10012501)
313.96	313.96	0.00581 (10012501)	314.66	314.66	0.00581 (10012501)
315.37	315.37	0.00581 (10012501)	316.08	316.08	0.00581 (10012501)
316.78	316.78	0.00581 (10012501)	317.49	317.49	0.00581 (10012501)

*** AERMOD - VERSION 16216r *** *** EPTC_Screen *** 02/08/17
*** AERMET - VERSION SCREEN *** *** *** 10:52:21

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*** MODELOPTs: NonDEFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT RURAL

*** THE MAXIMUM 50 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL

* * *

INCLUDING SOURCE(S): SOURCE ,

* *

RANK CONC (YYMMDDHH) AT RECEPTOR (XR,YR) OF TYPE RANK CONC (YYMMDDHH) AT
RECEPTOR (XR,YR) OF TYPE

1.	34198.61636 (10010101) AT (	284.26,	284.26) DC	26.	33827.54425 (10010101) AT (	267.29,
267.29)	DC					
2.	34183.24231 (10010101) AT (	283.55,	283.55) DC	27.	33811.85205 (10010101) AT (	266.58,
266.58)	DC					
3.	34167.85526 (10010101) AT (	282.84,	282.84) DC	28.	33796.14619 (10010101) AT (	265.87,
265.87)	DC					
4.	34157.62511 (10010101) AT (	284.96,	284.96) DC	29.	33780.64812 (10010101) AT (	265.17,
265.17)	DC					
5.	34152.67220 (10010101) AT (	282.14,	282.14) DC	30.	33764.91501 (10010101) AT (	264.46,
264.46)	DC					
6.	34137.25928 (10010101) AT (	281.43,	281.43) DC	31.	33749.16815 (10010101) AT (	263.75,
263.75)	DC					
7.	34121.83329 (10010101) AT (	280.72,	280.72) DC	32.	33733.40749 (10010101) AT (	263.04,
263.04)	DC					
8.	34106.39421 (10010101) AT (	280.01,	280.01) DC	33.	33717.85529 (10010101) AT (	262.34,
262.34)	DC					
9.	34091.15972 (10010101) AT (	279.31,	279.31) DC	34.	33702.06716 (10010101) AT (	261.63,
261.63)	DC					
10.	34075.69454 (10010101) AT (	278.60,	278.60) DC	35.	33686.26515 (10010101) AT (	260.92,
260.92)	DC					
11.	34060.21618 (10010101) AT (	277.89,	277.89) DC	36.	33670.67208 (10010101) AT (	260.22,
260.22)	DC					
12.	34044.94289 (10010101) AT (	277.19,	277.19) DC	37.	33654.84241 (10010101) AT (	259.51,
259.51)	DC					

13. 34029.43827 (10010101) AT (276.48, 276.48) DC	38. 33638.99877 (10010101) AT (258.80, 258.80) DC
14. 34013.92038 (10010101) AT (275.77, 275.77) DC	39. 33623.14112 (10010101) AT (258.09, 258.09) DC
15. 33998.38920 (10010101) AT (275.06, 275.06) DC	40. 33607.49308 (10010101) AT (257.39, 257.39) DC
16. 33983.06372 (10010101) AT (274.36, 274.36) DC	41. 33591.60754 (10010101) AT (256.68, 256.68) DC
17. 33967.50605 (10010101) AT (273.65, 273.65) DC	42. 33575.70789 (10010101) AT (255.97, 255.97) DC
18. 33951.93500 (10010101) AT (272.94, 272.94) DC	43. 33560.01836 (10010101) AT (255.27, 255.27) DC
19. 33936.57014 (10010101) AT (272.24, 272.24) DC	44. 33544.09063 (10010101) AT (254.56, 254.56) DC
20. 33920.97244 (10010101) AT (271.53, 271.53) DC	45. 33528.14871 (10010101) AT (253.85, 253.85) DC
21. 33905.36126 (10010101) AT (270.82, 270.82) DC	46. 33512.19257 (10010101) AT (253.14, 253.14) DC
22. 33889.73660 (10010101) AT (270.11, 270.11) DC	47. 33496.44720 (10010101) AT (252.44, 252.44) DC
23. 33874.31876 (10010101) AT (269.41, 269.41) DC	48. 33495.78362 (10010201) AT (283.55, 283.55) DC
24. 33858.66721 (10010101) AT (268.70, 268.70) DC	49. 33480.98776 (10010201) AT (282.84, 282.84) DC
25. 33843.00207 (10010101) AT (267.99, 267.99) DC	50. 33480.46219 (10010101) AT (251.73, 251.73) DC

*** RECEPTOR TYPES: GC = GRIDCART

GP = GRIDPOLR

DC = DISCCART

DP = DISCPOLR

*** AERMOD - VERSION 16216r *** *** EPTC_Screen

*** 02/08/17

*** AERMET - VERSION SCREEN *** ***

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*** MODELOPTs: NonDFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

*** THE MAXIMUM 50 1-HR DRY DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): SOURCE ,

** DEPO OF EPTC IN LB/A **

RANK DEPO (YYMMDDHH) AT RECEPTOR (XR,YR) OF TYPE RANK DEPO (YYMMDDHH) AT
RECEPTOR (XR,YR) OF TYPE

1. 0.01555 (10011101) AT (299.11, 299.11) DC	26. 0.01550 (10011101) AT (312.54, 312.54) DC
2. 0.01555 (10011101) AT (305.47, 305.47) DC	27. 0.01550 (10011101) AT (294.16, 294.16) DC
3. 0.01555 (10011101) AT (304.76, 304.76) DC	28. 0.01549 (10011101) AT (313.25, 313.25) DC

4.	0.01555 (10011101) AT (	306.18,	306.18)	DC	29.	0.01549 (10011101) AT (	293.45,	293.45)
DC					30.	0.01548 (10011101) AT (	313.96,	313.96)
5.	0.01555 (10011101) AT (	304.06,	304.06)	DC	31.	0.01548 (10011101) AT (	292.74,	292.74)
DC					32.	0.01547 (10011401) AT (	298.40,	298.40)
6.	0.01555 (10011101) AT (	306.88,	306.88)	DC	33.	0.01547 (10011101) AT (	292.04,	292.04)
DC					34.	0.01547 (10011101) AT (	314.66,	314.66)
7.	0.01555 (10011101) AT (	307.59,	307.59)	DC	35.	0.01546 (10011401) AT (	297.69,	297.69)
DC					36.	0.01546 (10011401) AT (	304.06,	304.06)
8.	0.01555 (10011101) AT (	303.35,	303.35)	DC	37.	0.01546 (10011401) AT (	303.35,	303.35)
DC					38.	0.01546 (10011401) AT (	304.76,	304.76)
9.	0.01555 (10011101) AT (	298.40,	298.40)	DC	39.	0.01546 (10011101) AT (	291.33,	291.33)
DC					40.	0.01546 (10011401) AT (	302.64,	302.64)
10.	0.01554 (10011101) AT (	308.30,	308.30)	DC	41.	0.01546 (10011401) AT (	305.47,	305.47)
DC					42.	0.01546 (10011401) AT (	296.98,	296.98)
11.	0.01554 (10011101) AT (	302.64,	302.64)	DC	43.	0.01546 (10011401) AT (	301.93,	301.93)
DC					44.	0.01546 (10011101) AT (	315.37,	315.37)
12.	0.01554 (10011101) AT (	297.69,	297.69)	DC	45.	0.01546 (10011401) AT (	306.18,	306.18)
DC					46.	0.01545 (10011101) AT (	290.62,	290.62)
13.	0.01554 (10011101) AT (	309.01,	309.01)	DC	47.	0.01545 (10011401) AT (	301.23,	301.23)
DC					48.	0.01545 (10011401) AT (	306.88,	306.88)
14.	0.01554 (10011101) AT (	301.93,	301.93)	DC	49.	0.01545 (10011401) AT (	296.28,	296.28)
DC					50.	0.01545 (10011401) AT (	300.52,	300.52)
15.	0.01553 (10011101) AT (	309.71,	309.71)	DC				
DC								
16.	0.01553 (10011101) AT (	301.23,	301.23)	DC				
DC								
17.	0.01553 (10011101) AT (	296.98,	296.98)	DC				
DC								
18.	0.01553 (10011101) AT (	310.42,	310.42)	DC				
DC								
19.	0.01553 (10011101) AT (	300.52,	300.52)	DC				
DC								
20.	0.01552 (10011101) AT (	296.28,	296.28)	DC				
DC								
21.	0.01552 (10011101) AT (	311.13,	311.13)	DC				
DC								
22.	0.01552 (10011101) AT (	299.81,	299.81)	DC				
DC								
23.	0.01551 (10011101) AT (	295.57,	295.57)	DC				
DC								
24.	0.01551 (10011101) AT (	311.83,	311.83)	DC				
DC								
25.	0.01551 (10011101) AT (	294.86,	294.86)	DC				
DC								

*** RECEPTOR TYPES: GC = GRIDCART

GP = GRIDPOLR

DC = DISCCART

DP = DISCPOLR

*** AERMOD - VERSION 16216r *** *** EPTC_Screen
*** AERMET - VERSION SCREEN *** ***

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*** MODELOPTs: NonDFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

*** THE MAXIMUM 50 1-HR WET DEPOSITION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): SOURCE ,

** DEPO OF EPTC IN LB/A **

RANK DEPO (YYMMDDHH) AT RECEPTOR (XR,YR) OF TYPE RANK DEPO (YYMMDDHH) AT
RECEPTOR (XR,YR) OF TYPE

1.	0.00585 (10012501) AT (285.67, 285.67) DC	26.	0.00583 (10012501) AT (301.23, 301.23)	
DC	2.	0.00585 (10012501) AT (284.96, 284.96) DC	27.	0.00583 (10012501) AT (301.93, 301.93)
DC	3.	0.00585 (10012501) AT (286.38, 286.38) DC	28.	0.00583 (10012501) AT (282.84, 282.84)
DC	4.	0.00585 (10012501) AT (287.09, 287.09) DC	29.	0.00583 (10012501) AT (302.64, 302.64)
DC	5.	0.00584 (10012501) AT (287.79, 287.79) DC	30.	0.00582 (10012501) AT (303.35, 303.35)
DC	6.	0.00584 (10012501) AT (288.50, 288.50) DC	31.	0.00582 (10012501) AT (304.06, 304.06)
DC	7.	0.00584 (10012501) AT (289.21, 289.21) DC	32.	0.00582 (10012501) AT (304.76, 304.76)
DC	8.	0.00584 (10012501) AT (289.91, 289.91) DC	33.	0.00582 (10012501) AT (305.47, 305.47)
DC	9.	0.00584 (10012501) AT (284.26, 284.26) DC	34.	0.00582 (10012501) AT (306.18, 306.18)
DC	10.	0.00584 (10012501) AT (290.62, 290.62) DC	35.	0.00582 (10012501) AT (306.88, 306.88)
DC	11.	0.00584 (10012501) AT (291.33, 291.33) DC	36.	0.00582 (10012501) AT (307.59, 307.59)
DC	12.	0.00584 (10012501) AT (292.04, 292.04) DC	37.	0.00582 (10012501) AT (308.30, 308.30)
DC	13.	0.00584 (10012501) AT (292.74, 292.74) DC	38.	0.00582 (10012501) AT (309.01, 309.01)
DC	14.	0.00584 (10012501) AT (293.45, 293.45) DC	39.	0.00582 (10012501) AT (282.14, 282.14)
DC	15.	0.00584 (10012501) AT (294.16, 294.16) DC	40.	0.00582 (10012501) AT (309.71, 309.71)
DC	16.	0.00583 (10012501) AT (294.86, 294.86) DC	41.	0.00582 (10012501) AT (310.42, 310.42)
DC	17.	0.00583 (10012501) AT (295.57, 295.57) DC	42.	0.00582 (10012501) AT (311.13, 311.13)
DC	18.	0.00583 (10012501) AT (283.55, 283.55) DC	43.	0.00582 (10012501) AT (311.83, 311.83)
DC	19.	0.00583 (10012501) AT (296.28, 296.28) DC	44.	0.00582 (10012501) AT (312.54, 312.54)

20. 0.00583 (10012501) AT (296.98, 296.98) DC 45. 0.00581 (10012501) AT (313.25, 313.25)
DC
21. 0.00583 (10012501) AT (297.69, 297.69) DC 46. 0.00581 (10012501) AT (313.96, 313.96)
DC
22. 0.00583 (10012501) AT (298.40, 298.40) DC 47. 0.00581 (10012501) AT (314.66, 314.66)
DC
23. 0.00583 (10012501) AT (299.11, 299.11) DC 48. 0.00581 (10012501) AT (315.37, 315.37)
DC
24. 0.00583 (10012501) AT (299.81, 299.81) DC 49. 0.00581 (10012501) AT (316.08, 316.08)
DC
25. 0.00583 (10012501) AT (300.52, 300.52) DC 50. 0.00581 (10012501) AT (316.78, 316.78)
DC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** AERMOD - VERSION 16216r *** *** EPTC_Screen *** 02/08/17
*** AERMET - VERSION SCREEN *** *** *** 10:52:21

PAGE 18

*** MODELOPTs: NonDFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF EPTC IN MICROGRAMS/M**3 **

GROUP ID TYPE	DATE AVERAGE CONC GRID-ID	NETWORK RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF
------------------	---------------------------------	--

ALL HIGH 1ST HIGH VALUE IS 34198.61636 ON 10010101: AT (284.26, 284.26, 0.00, 0.00, 0.00)
DC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** AERMOD - VERSION 16216r *** *** EPTC_Screen *** AERMET - VERSION SCREEN *** *** *** 02/08/17 *** 10:52:21
PAGE 19
*** MODELOPTs: NonDFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT RURAL

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** DEPO OF EPTC IN LB/A **

GROUP ID GRID-ID	DATE DRY DEPO (YYMMDDHH)	NETWORK RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE
ALL	HIGH 1ST HIGH VALUE IS 0.01555 ON 10011101: AT (299.11, 299.11, 0.00, 0.00, 0.00) DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** AERMOD - VERSION 16216r *** *** EPTC_Screen *** AERMET - VERSION SCREEN *** *** *** 02/08/17 *** 10:52:21
PAGE 20
*** MODELOPTs: NonDFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT RURAL

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** DEPO OF EPTC IN LB/A **

GROUP ID GRID-ID	DATE WET DEPO (YYMMDDHH)	NETWORK RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE
ALL	HIGH 1ST HIGH VALUE IS 0.00585 ON 10012501: AT (285.67, 285.67, 0.00, 0.00, 0.00) DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** AERMOD - VERSION 16216r *** *** EPTC_Screen
*** AERMET - VERSION SCREEN *** ***

*** 02/08/17
*** 10:52:21

PAGE 21

*** MODELOPTs: NonDFAULT CONC DDEP WDEP FLAT NOCHKD FASTAREA SCREEN DRYDPLT WETDPLT
RURAL

*** Message Summary : AERMOD Model Execution ***

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 0 Informational Message(s)

A Total of 700 Hours Were Processed

A Total of 0 Calm Hours Identified

A Total of 0 Missing Hours Identified (0.00 Percent)

Met Data File Includes 1385.00 Millimeters (54.528 Inches) of Precipitation

***** FATAL ERROR MESSAGES *****
*** NONE ***

***** WARNING MESSAGES *****
*** NONE ***

*** AERMOD Finishes Successfully ***

APPENDIX E. AERMOD Output Summary

	1-h Dry Dep (lb/A)	1-h Wet Dep (lb/A)	24-h Dry Dep (lb/A)	24-h Wet Dep (lb/A)	TOTAL Dep (lb/A)	Average Air (ug/m3)	Average Air (mg/m3)
aermod_01_01_2lb	0.0051	0.00192	0.12	0.05	0.17	11212.7646	11.21
aermod_02_01_2lb	0.00464	0.00191	0.11	0.05	0.16	8513.13426	8.51
aermod_03_01_2lb	0.00314	0.0019	0.08	0.05	0.12	4601.1499	4.60
aermod_04_01_2lb	0.00191	0.00431	0.05	0.10	0.15	7279.20223	7.28
aermod_01_01_6lb	0.00585	0.01555	0.14	0.37	0.51	34198.61636	34.20

APPENDIX F. EPTC Aquatic RQ Tables
Fish RQs for Emulsifiable Concentrate Formulations of EPTC

Uses	Scenario	Peak EECs	21-day EECs	60-day EECs	Acute Freshwater Fish RQ	Chronic Freshwater Fish RQ	Acute Saltwater Fish RQ	Chronic Saltwater Fish RQ
Agr_Fallow	Tier1_+0	21.00	12.10	5.71	<0.01	0.14	<0.01	0.11
Agr_Fallow	RangeBSS_+0	21.00	13.40	6.67	<0.01	0.17	<0.01	0.13
Agr_Fallow	MeadowBSS_+0	20.90	13.20	6.63	<0.01	0.17	<0.01	0.13
Alfalfa	NCalfalfaOP_+0	22.00	14.70	11.50	<0.01	0.29	<0.01	0.23
Alfalfa	TxAlfalfaOP_+0	21.30	14.70	10.90	<0.01	0.27	<0.01	0.22
Alfalfa	lLalfalfaNMC_+0	20.50	13.00	9.60	<0.01	0.24	<0.01	0.19
Alfalfa	lLalfalfaNMC_+0	18.30	11.80	6.09	<0.01	0.15	<0.01	0.12
Alfalfa	TxAlfalfaOP_+0	17.90	11.80	6.81	<0.01	0.17	<0.01	0.14
Alfalfa	PAalfalfaOP_+0	17.10	12.40	10.70	<0.01	0.27	<0.01	0.21
Alfalfa	NCalfalfaOP_+0	17.10	10.80	5.65	<0.01	0.14	<0.01	0.11
Alfalfa	PAalfalfaOP_+0	17.10	11.50	7.06	<0.01	0.18	<0.01	0.14
Alfalfa	PAalfalfaOP_+0	16.30	10.20	5.41	<0.01	0.14	<0.01	0.11
Alfalfa	TxAlfalfaOP_+0	16.10	11.20	5.92	<0.01	0.15	<0.01	0.12
Alfalfa	Tier1_+0	16.10	8.68	4.31	<0.01	0.11	<0.01	0.09
Alfalfa	CAalfalfa_WirrigOP_+0	15.60	10.70	8.93	<0.01	0.22	<0.01	0.18
Alfalfa	NCalfalfaOP_+0	15.20	11.50	6.67	<0.01	0.17	<0.01	0.13
Alfalfa	Tier1_+0	14.80	8.64	7.01	<0.01	0.18	<0.01	0.14
Alfalfa	lLalfalfaNMC_+0	14.80	10.20	5.24	<0.01	0.13	<0.01	0.10
Alfalfa	MNalfalfaOP_+0	14.60	8.74	6.97	<0.01	0.17	<0.01	0.14
Alfalfa	CAalfalfa_WirrigOP_+0	14.40	10.10	6.13	<0.01	0.15	<0.01	0.12
Alfalfa	CAalfalfa_WirrigOP_+0	14.10	11.10	7.30	<0.01	0.18	<0.01	0.15
Alfalfa	Tier1_+0	14.00	8.40	4.12	<0.01	0.10	<0.01	0.08
Alfalfa	MNalfalfaOP_+0	13.90	8.95	4.52	<0.01	0.11	<0.01	0.09
Alfalfa	MNalfalfaOP_+0	13.90	8.89	4.25	<0.01	0.11	<0.01	0.09
Almond	Tier1_+0	20.70	20.00	18.90	<0.01	0.47	<0.01	0.38
Almond	CAalmond_WirrigSTD_+0	15.20	10.40	7.92	<0.01	0.20	<0.01	0.16

Carrot	FLcarrotSTD_+0	33.20	22.20	14.70	<0.01	0.37	<0.01	0.29
Carrot	Tier1_+0	24.80	20.00	12.90	<0.01	0.32	<0.01	0.26
Carrot	PAvegetableNMC_+0	21.60	15.60	11.60	<0.01	0.29	<0.01	0.23
Castor Bean	ILbeansNMC_+0	15.90	11.70	9.90	<0.01	0.25	<0.01	0.20
Castor Bean	ORsnbeansSTD_+0	13.70	10.30	8.58	<0.01	0.21	<0.01	0.17
Castor Bean	WAbeansNMC_+0	12.50	9.26	7.62	<0.01	0.19	<0.01	0.15
Castor Bean	Tier1_+0	12.40	8.51	6.89	<0.01	0.17	<0.01	0.14
Castor Bean	ILbeansNMC_+0	8.62	5.38	2.90	<0.01	0.07	<0.01	0.06
Castor Bean	Tier1_+0	8.06	4.34	2.15	<0.01	0.05	<0.01	0.04
Castor Bean	ORsnbeansSTD_+0	7.24	5.46	3.16	<0.01	0.08	<0.01	0.06
Castor Bean	WAbeansNMC_+0	6.94	4.57	2.47	<0.01	0.06	<0.01	0.05
Citrus	FLcitrusSTD_+0	23.60	15.90	9.16	<0.01	0.23	<0.01	0.18
Citrus	Tier1_+0	22.10	12.70	6.33	<0.01	0.16	<0.01	0.13
Citrus	CAcitrus_WirrigSTD_+0	21.70	14.00	7.45	<0.01	0.19	<0.01	0.15
Citrus	STXgrapefruitNMC_+0	21.70	12.90	5.90	<0.01	0.15	<0.01	0.12
Citrus	FLcitrusSTD_+0	11.70	7.89	4.54	<0.01	0.11	<0.01	0.09
Citrus	Tier1_+0	11.00	6.30	3.14	<0.01	0.08	<0.01	0.06
Citrus	CAcitrus_WirrigSTD_+0	10.80	6.95	3.70	<0.01	0.09	<0.01	0.07
Citrus	STXgrapefruitNMC_+0	10.80	6.40	2.93	<0.01	0.07	<0.01	0.06
Clover	NCalfalfaOP_+0	15.00	9.36	4.96	<0.01	0.12	<0.01	0.10
Clover	PAalfalfaOP_+0	14.90	9.43	5.08	<0.01	0.13	<0.01	0.10
Clover	Tier1_+0	14.10	8.33	3.99	<0.01	0.10	<0.01	0.08
Clover	CAalfalfa_WirrigOP_+0	14.00	10.80	7.19	<0.01	0.18	<0.01	0.14
Clover	ILalfalfaNMC_+0	14.00	9.50	4.80	<0.01	0.12	<0.01	0.10
Clover	MNalfalfaOP_+0	13.90	8.55	4.20	<0.01	0.11	<0.01	0.08
Clover	TXalfalfaOP_+0	13.90	9.58	5.18	<0.01	0.13	<0.01	0.10
Conifer	NurseryBSS_V2_+0	31.60	20.40	11.00	<0.01	0.28	<0.01	0.22
Conifer	FLnurserySTD_V2_+0	28.80	16.90	8.53	<0.01	0.21	<0.01	0.17
Conifer	TNnurserySTD_V2_+0	24.80	16.70	10.40	<0.01	0.26	<0.01	0.21
Conifer	NJnurserySTD_V2_+0	22.40	14.10	7.45	<0.01	0.19	<0.01	0.15
Conifer	MinurserySTD_V2_+0	21.70	14.00	7.33	<0.01	0.18	<0.01	0.15

Conifer	Tier1_+0	21.20	12.20	6.08	<0.01	0.15	<0.01	0.12
Conifer	CAnurserySTD_V2_+0	20.80	13.40	7.07	<0.01	0.18	<0.01	0.14
Conifer	ORNurserySTD_V2_+0	20.80	14.50	8.19	<0.01	0.20	<0.01	0.16
Corn	MScornSTD_+0	37.20	24.40	14.30	<0.01	0.36	<0.01	0.29
Corn	IACornstd_+0	29.40	17.90	9.02	<0.01	0.23	<0.01	0.18
Corn	MScornSTD_+0	28.90	19.90	11.40	<0.01	0.29	<0.01	0.23
Corn	KSCornStd_+0	27.10	18.80	9.62	<0.01	0.24	<0.01	0.19
Corn	NECornStd_+0	27.00	18.90	10.10	<0.01	0.25	<0.01	0.20
Corn	NECornStd_+0	26.80	17.40	9.29	<0.01	0.23	<0.01	0.19
Corn	INCornStd_+0	25.90	17.90	10.10	<0.01	0.25	<0.01	0.20
Corn	ILCornSTD_+0	25.20	15.80	8.34	<0.01	0.21	<0.01	0.17
Corn	Tier1_+0	24.60	13.20	6.57	<0.01	0.16	<0.01	0.13
Corn	CARowCropRLF_V2_+0	24.40	17.30	9.97	<0.01	0.25	<0.01	0.20
Corn	ILCornSTD_+0	24.20	15.00	7.94	<0.01	0.20	<0.01	0.16
Corn	PACornSTD_+0	24.20	15.20	8.26	<0.01	0.21	<0.01	0.17
Corn	CARowCropRLF_V2_+0	24.10	15.50	8.84	<0.01	0.22	<0.01	0.18
Corn	NCCornWOP_+0	24.00	16.00	8.85	<0.01	0.22	<0.01	0.18
Corn	KSCornStd_+0	23.80	16.30	8.42	<0.01	0.21	<0.01	0.17
Corn	NCCornWOP_+0	23.10	16.70	10.20	<0.01	0.26	<0.01	0.20
Corn	MNCornStd_+0	22.70	13.00	6.30	<0.01	0.16	<0.01	0.13
Corn	CACornOP_+0	21.90	15.00	7.88	<0.01	0.20	<0.01	0.16
Corn	TXcornOP_+0	21.50	14.20	7.19	<0.01	0.18	<0.01	0.14
Corn	INCornStd_+0	21.30	14.80	8.06	<0.01	0.20	<0.01	0.16
Corn	MNCornStd_+0	21.30	12.90	6.18	<0.01	0.15	<0.01	0.12
Corn	STXcornNMC_+0	21.20	12.10	5.85	<0.01	0.15	<0.01	0.12
Corn	CACornOP_+0	21.20	13.90	7.49	<0.01	0.19	<0.01	0.15
Corn	NDcornOP_+0	21.20	13.70	7.12	<0.01	0.18	<0.01	0.14
Corn	TXcornOP_+0	21.20	13.50	7.25	<0.01	0.18	<0.01	0.15
Corn	IACornstd_+0	21.20	13.90	7.36	<0.01	0.18	<0.01	0.15
Corn	PACornSTD_+0	21.20	15.10	9.00	<0.01	0.23	<0.01	0.18
Corn	Tier1_+0	21.20	13.10	6.62	<0.01	0.17	<0.01	0.13

Corn	STXcornNMC_+0	21.20	12.70	6.41	<0.01	0.16	<0.01	0.13
Corn	NDcornOP_+0	21.20	13.00	6.48	<0.01	0.16	<0.01	0.13
Cotton	MScottonSTD_+0	15.30	11.00	6.07	<0.01	0.15	<0.01	0.12
Cotton	NMcottonSTD_+0	12.90	8.84	5.05	<0.01	0.13	<0.01	0.10
Cotton	Tier1_+0	12.10	6.51	3.23	<0.01	0.08	<0.01	0.06
Cotton	CAcotton_WirrigSTD_+0	11.30	7.22	3.82	<0.01	0.10	<0.01	0.08
Cotton	STXcottonNMC_+0	10.40	5.94	2.93	<0.01	0.07	<0.01	0.06
Dry Bean	Tier1_+0	29.10	20.00	11.60	<0.01	0.29	<0.01	0.23
Dry Bean	IlbeansNMC_+0	27.40	19.10	12.30	<0.01	0.31	<0.01	0.25
Dry Bean	ORsnbeansSTD_+0	24.50	18.40	13.20	<0.01	0.33	<0.01	0.26
Dry Bean	Tier1_+0	22.60	15.50	8.98	<0.01	0.22	<0.01	0.18
Dry Bean	WAbeansNMC_+0	22.00	14.90	10.00	<0.01	0.25	<0.01	0.20
Dry Bean	IlbeansNMC_+0	21.20	14.90	9.57	<0.01	0.24	<0.01	0.19
Dry Bean	ORsnbeansSTD_+0	19.00	14.30	10.20	<0.01	0.26	<0.01	0.20
Dry Bean	Tier1_+0	17.80	11.50	7.13	<0.01	0.18	<0.01	0.14
Dry Bean	WAbeansNMC_+0	17.10	11.60	7.80	<0.01	0.20	<0.01	0.16
Dry Bean	IlbeansNMC_+0	16.80	11.70	7.89	<0.01	0.20	<0.01	0.16
Dry Bean	ORsnbeansSTD_+0	15.30	11.70	8.58	<0.01	0.21	<0.01	0.17
Dry Bean	WAbeansNMC_+0	13.20	9.55	6.79	<0.01	0.17	<0.01	0.14
Dry Bean	IlbeansNMC_+0	11.00	7.56	4.14	<0.01	0.10	<0.01	0.08
Dry Bean	Tier1_+0	10.80	6.25	3.02	<0.01	0.08	<0.01	0.06
Dry Bean	ORsnbeansSTD_+0	10.80	7.53	4.35	<0.01	0.11	<0.01	0.09
Dry Bean	WAbeansNMC_+0	10.80	6.95	3.77	<0.01	0.09	<0.01	0.08
Ornamental	FLnurserySTD_V2_+0	52.40	34.00	17.80	<0.01	0.45	<0.01	0.36
Ornamental	TNnurserySTD_V2_+0	52.00	37.60	22.70	<0.01	0.57	<0.01	0.45
Ornamental	NJnurserySTD_V2_+0	51.80	32.40	17.00	<0.01	0.43	<0.01	0.34
Ornamental	MInurserySTD_V2_+0	51.70	31.90	16.70	<0.01	0.42	<0.01	0.33
Ornamental	ORnurserySTD_V2_+0	51.50	34.50	18.70	<0.01	0.47	<0.01	0.37
Ornamental	NurseryBSS_V2_+0	51.50	33.50	17.40	<0.01	0.44	<0.01	0.35
Ornamental	CAnurserySTD_V2_+0	51.40	32.90	17.70	<0.01	0.44	<0.01	0.35
Ornamental	Tier1_+0	51.40	30.30	14.90	<0.01	0.37	<0.01	0.30

Ornamental	NurseryBSS_V2_+0	32.60	21.10	11.40	<0.01	0.29	<0.01	0.23
Ornamental	FLnurserySTD_V2_+0	29.80	17.50	8.81	<0.01	0.22	<0.01	0.18
Ornamental	TNnurserySTD_V2_+0	25.60	17.30	10.70	<0.01	0.27	<0.01	0.21
Ornamental	NnurserySTD_V2_+0	23.20	14.50	7.70	<0.01	0.19	<0.01	0.15
Ornamental	MnurserySTD_V2_+0	22.50	14.50	7.57	<0.01	0.19	<0.01	0.15
Ornamental	Tier1_-0	21.90	12.60	6.29	<0.01	0.16	<0.01	0.13
Ornamental	CAnurserySTD_V2_+0	21.50	13.80	7.31	<0.01	0.18	<0.01	0.15
Ornamental	ORNurserySTD_V2_+0	21.50	15.00	8.46	<0.01	0.21	<0.01	0.17
Potato	MEpotatoSTD_+0	51.70	33.20	19.60	<0.01	0.49	<0.01	0.39
Potato	Tier1_-0	49.00	28.00	13.90	<0.01	0.35	<0.01	0.28
Potato	Tier1_-+0	38.40	21.50	12.90	<0.01	0.32	<0.01	0.26
Potato	Tier1_+0	35.30	21.40	12.50	<0.01	0.31	<0.01	0.25
Potato	IDNpotato_WirrigSTD_+0	35.30	25.90	13.60	<0.01	0.34	<0.01	0.27
Potato	MEpotatoSTD_+0	28.30	18.10	11.90	<0.01	0.30	<0.01	0.24
Potato	IDNpotato_WirrigSTD_+0	22.10	14.30	7.36	<0.01	0.18	<0.01	0.15
Potato	MEpotatoSTD_+0	6.35	5.37	3.48	<0.01	0.09	<0.01	0.07
Potato	IDNpotato_WirrigSTD_+0	5.82	4.70	3.49	<0.01	0.09	<0.01	0.07
Potato	Tier1_-+0	5.67	4.29	3.10	<0.01	0.08	<0.01	0.06
Safflower	TXwheatOP_+0	18.20	11.50	7.38	<0.01	0.18	<0.01	0.15
Safflower	CAWheatRLF_V2_+0	14.50	9.86	5.79	<0.01	0.14	<0.01	0.12
Safflower	CAWheatRLF_V2_-0	12.80	10.00	6.41	<0.01	0.16	<0.01	0.13
Safflower	TXwheatOP_+0	12.40	8.65	4.96	<0.01	0.12	<0.01	0.10
Safflower	NDcanolaSTD_+0	12.10	9.09	4.33	<0.01	0.11	<0.01	0.09
Safflower	NDwheatSTD_+0	12.10	8.63	4.07	<0.01	0.10	<0.01	0.08
Safflower	Tier1_-+0	12.10	9.09	4.33	<0.01	0.11	<0.01	0.09
Safflower	NDwheatSTD_+0	11.10	6.66	3.62	<0.01	0.09	<0.01	0.07
Safflower	NDcanolaSTD_+0	10.80	6.63	3.54	<0.01	0.09	<0.01	0.07
Safflower	ORwheatOP_+0	10.80	7.77	4.78	<0.01	0.12	<0.01	0.10
Safflower	Tier1_-+0	10.80	6.63	3.54	<0.01	0.09	<0.01	0.07
Safflower	ORwheatOP_+0	10.80	7.54	4.44	<0.01	0.11	<0.01	0.09
Sugarbeet	Tier1_-+0	16.20	9.34	5.21	<0.01	0.13	<0.01	0.10

Sugarbeet	MNsugarbeetSTD_+0	16.20	9.83	5.57	<0.01	0.14	<0.01	0.11
Sugarbeet	CAsugarbeet_WirrigOP_+0	16.00	11.80	7.54	<0.01	0.19	<0.01	0.15
Sugarbeet	Tier1_-+0	12.10	9.10	4.34	<0.01	0.11	<0.01	0.09
Sugarbeet	MNsugarbeetSTD_-+0	12.10	8.64	4.07	<0.01	0.10	<0.01	0.08
Sugarbeet	CAsugarbeet_WirrigOP_-+0	11.10	8.62	5.78	<0.01	0.14	<0.01	0.12
Sugarbeet	MNsugarbeetSTD_-+0	6.50	4.63	2.83	<0.01	0.07	<0.01	0.06
Sugarbeet	Tier1_-+0	4.82	3.59	2.29	<0.01	0.06	<0.01	0.05
Sugarbeet	CAsugarbeet_WirrigOP_-+0	1.38	1.14	0.82	<0.01	0.02	<0.01	0.02
Sunflower	TXwheatOP_-+0	21.90	14.60	8.68	<0.01	0.22	<0.01	0.17
Sunflower	NDwheatSTD_+0	16.40	9.97	5.50	<0.01	0.14	<0.01	0.11
Sunflower	NDcanolaSTD_-+0	16.20	9.34	5.21	<0.01	0.13	<0.01	0.10
Sunflower	Tier1_-+0	16.20	9.34	5.21	<0.01	0.13	<0.01	0.10
Sunflower	CAWheatRLF_V2_+0	16.00	12.20	8.22	<0.01	0.21	<0.01	0.16
Sunflower	ORwheatOP_-+0	16.00	12.20	7.42	<0.01	0.19	<0.01	0.15
Sunflower	CAWheatRLF_V2_-+0	14.50	9.86	5.79	<0.01	0.14	<0.01	0.12
Sunflower	TXwheatOP_-+0	12.40	8.65	4.96	<0.01	0.12	<0.01	0.10
Sunflower	NDwheatSTD_+0	11.10	6.66	3.62	<0.01	0.09	<0.01	0.07
Sunflower	NDcanolaSTD_-+0	10.80	6.63	3.54	<0.01	0.09	<0.01	0.07
Sunflower	Tier1_-+0	10.80	6.63	3.54	<0.01	0.09	<0.01	0.07
Sunflower	ORwheatOP_-+0	10.80	7.77	4.78	<0.01	0.12	<0.01	0.10
Tomato	FltomatoSTD_V2_+0	11.10	8.61	5.43	<0.01	0.14	<0.01	0.11
Tomato	PAtomatoSTD_-+0	11.10	8.61	5.43	<0.01	0.14	<0.01	0.11
Tomato	Tier1_-+0	11.00	8.79	5.66	<0.01	0.14	<0.01	0.11
Tomato	CAtomato_WirrigSTD_+0	11.00	9.03	6.47	<0.01	0.16	<0.01	0.13
Walnut	CAalmond_WirrigSTD_-+0	11.10	6.98	3.54	<0.01	0.09	<0.01	0.07
Walnut	Tier1_-+0	11.00	6.29	3.14	<0.01	0.08	<0.01	0.06
Walnut	ORfilbertsSTD_+0	10.80	7.46	4.28	<0.01	0.11	<0.01	0.09
Walnut	ORappleSTD_-+0	10.80	7.48	4.29	<0.01	0.11	<0.01	0.09
Walnut	CAOliverRLF_V2_-+0	10.80	6.87	3.61	<0.01	0.09	<0.01	0.07
Walnut	WAorchardsNMC_-+0	10.80	6.93	3.76	<0.01	0.09	<0.01	0.08
Walnut	ORappleSTD_-+0	10.80	7.48	4.29	<0.01	0.11	<0.01	0.09

Walnut	OrfilbertsSTD_+0	10.80	7.46	4.28	<0.01	0.11	<0.01	0.09
Watermelon	NJmelonStd_+0	13.40	7.10	3.73	<0.01	0.09	<0.01	0.07
Watermelon	MOmelonStd_+0	12.40	8.35	4.42	<0.01	0.11	<0.01	0.09
Watermelon	STXmelonNMC_+0	11.90	7.09	3.53	<0.01	0.09	<0.01	0.07
Watermelon	Tier1_+0	10.90	6.78	3.31	<0.01	0.08	<0.01	0.07
Watermelon	CAMelonsRLF_V2_+0	10.80	7.05	3.78	<0.01	0.09	<0.01	0.08
Watermelon	MimelonStd_+0	10.80	6.80	3.74	<0.01	0.09	<0.01	0.07

Aquatic Invertebrate RQs for Emulsifiable Concentrate Formulations of EPTC

Uses	Scenario	Peak EECs	21-day EECs	60-day EECs	Freshwater Invertebrate RQ	Chronic Freshwater Invertebrate RQ	Acute Saltwater Invertebrate RQ	Chronic Saltwater Invertebrate RQ
								Chronic Saltwater Invertebrate RQ
Agr_Fallow	Tier1_+0	21.00	12.10	5.71	<0.01	0.02	0.03	0.15
Agr_Fallow	RangeBSS_+0	21.00	13.40	6.67	<0.01	0.02	0.03	0.17
Agr_Fallow	MeadowBSS_+0	20.90	13.20	6.63	<0.01	0.02	0.03	0.17
Alfalfa	NCalfalfaOP_+0	22.00	14.70	11.50	<0.01	0.02	0.03	0.18
Alfalfa	TXalfalfaOP_+0	21.30	14.70	10.90	<0.01	0.02	0.03	0.18
Alfalfa	ILalfalfaNMC_+0	20.50	13.00	9.60	<0.01	0.02	0.03	0.16
Alfalfa	ILalfalfaNMC_+0	18.30	11.80	6.09	<0.01	0.01	0.03	0.15
Alfalfa	TXalfalfaOP_+0	17.90	11.80	6.81	<0.01	0.01	0.03	0.15
Alfalfa	PAalfalfaOP_+0	17.10	12.40	10.70	<0.01	0.02	0.03	0.16
Alfalfa	NCalfalfaOP_+0	17.10	10.80	5.65	<0.01	0.01	0.03	0.14
Alfalfa	PAalfalfaOP_+0	17.10	11.50	7.06	<0.01	0.01	0.03	0.14
Alfalfa	PAalfalfaOP_+0	16.30	10.20	5.41	<0.01	0.01	0.03	0.13
Alfalfa	TXalfalfaOP_+0	16.10	11.20	5.92	<0.01	0.01	0.03	0.14
Alfalfa	Tier1_+0	16.10	8.68	4.31	<0.01	0.01	0.03	0.11
Alfalfa	CAalfalfa_WirrigOP_+0	15.60	10.70	8.93	<0.01	0.01	0.02	0.13
Alfalfa	NCalfalfaOP_+0	15.20	11.50	6.67	<0.01	0.01	0.02	0.14
Alfalfa	Tier1_+0	14.80	8.64	7.01	<0.01	0.01	0.02	0.11
Alfalfa	ILalfalfaNMC_+0	14.80	10.20	5.24	<0.01	0.01	0.02	0.13

Alfalfa	MNalfalfaOP_+0	14.60	8.74	6.97	<0.01	0.01	0.02	0.11
Alfalfa	CAlfalfa_WirrigOP_+0	14.40	10.10	6.13	<0.01	0.01	0.02	0.13
Alfalfa	CAlfalfa_WirrigOP_-0	14.10	11.10	7.30	<0.01	0.01	0.02	0.14
Alfalfa	Tier1_-+0	14.00	8.40	4.12	<0.01	0.01	0.02	0.11
Alfalfa	MNalfalfaOP_+0	13.90	8.95	4.52	<0.01	0.01	0.02	0.11
Alfalfa	MNalfalfaOP_-0	13.90	8.89	4.25	<0.01	0.01	0.02	0.11
Almond	Tier1_-+0	20.70	20.00	18.90	<0.01	0.03	0.03	0.25
Almond	CAlmond_WirrigSTD_+0	15.20	10.40	7.92	<0.01	0.01	0.02	0.13
Carrot	FLcarrotSTD_-0	33.20	22.20	14.70	<0.01	0.03	0.05	0.28
Carrot	Tier1_-+0	24.80	20.00	12.90	<0.01	0.03	0.04	0.25
Carrot	PAvegetableNMC_+0	21.60	15.60	11.60	<0.01	0.02	0.03	0.20
Castor Bean	ILbeansNMC_+0	15.90	11.70	9.90	<0.01	0.01	0.03	0.15
Castor Bean	ORsnbeansSTD_+0	13.70	10.30	8.58	<0.01	0.01	0.02	0.13
Castor Bean	WAbeansNMC_+0	12.50	9.26	7.62	<0.01	0.01	0.02	0.12
Castor Bean	Tier1_-+0	12.40	8.51	6.89	<0.01	0.01	0.02	0.11
Castor Bean	ILbeansNMC_+0	8.62	5.38	2.90	<0.01	<0.01	0.01	0.07
Castor Bean	Tier1_-+0	8.06	4.34	2.15	<0.01	<0.01	0.01	0.05
Castor Bean	ORsnbeansSTD_-0	7.24	5.46	3.16	<0.01	<0.01	0.01	0.07
Castor Bean	WAbeansNMC_+0	6.94	4.57	2.47	<0.01	<0.01	0.01	0.06
Citrus	FLcitrusSTD_+0	23.60	15.90	9.16	<0.01	0.02	0.04	0.20
Citrus	Tier1_-+0	22.10	12.70	6.33	<0.01	0.02	0.04	0.16
Citrus	CACitrus_WirrigSTD_+0	21.70	14.00	7.45	<0.01	0.02	0.03	0.18
Citrus	STXgrapefruitNMC_-0	21.70	12.90	5.90	<0.01	0.02	0.03	0.16
Citrus	FLcitrusSTD_-0	11.70	7.89	4.54	<0.01	<0.01	0.02	0.10
Citrus	Tier1_-+0	11.00	6.30	3.14	<0.01	<0.01	0.02	0.08
Citrus	CACitrus_WirrigSTD_-0	10.80	6.95	3.70	<0.01	<0.01	0.02	0.09
Citrus	STXgrapefruitNMC_+0	10.80	6.40	2.93	<0.01	<0.01	0.02	0.08
Clover	NCalalfaOP_-0	15.00	9.36	4.96	<0.01	0.01	0.02	0.12
Clover	PAlalfaOP_-0	14.90	9.43	5.08	<0.01	0.01	0.02	0.12
Clover	Tier1_-+0	14.10	8.33	3.99	<0.01	0.01	0.02	0.10
Clover	CAlfalfa_WirrigOP_-0	14.00	10.80	7.19	<0.01	0.01	0.02	0.14

Clover	I ^L alfalfaNMC_+0	14.00	9.50	4.80	<0.01	0.01	0.02	0.12
Clover	MNalfalfaOP_+0	13.90	8.55	4.20	<0.01	0.01	0.02	0.11
Clover	TxalfalfaOP_+0	13.90	9.58	5.18	<0.01	0.01	0.02	0.12
Conifer	NurseryBSS_V2_+0	31.60	20.40	11.00	<0.01	0.03	0.05	0.26
Conifer	FLnurserySTD_V2_+0	28.80	16.90	8.53	<0.01	0.02	0.05	0.21
Conifer	TnurserySTD_V2_+0	24.80	16.70	10.40	<0.01	0.02	0.04	0.21
Conifer	NjnurserySTD_V2_+0	22.40	14.10	7.45	<0.01	0.02	0.04	0.18
Conifer	MjnurserySTD_V2_+0	21.70	14.00	7.33	<0.01	0.02	0.03	0.18
Conifer	Tier1_+0	21.20	12.20	6.08	<0.01	0.02	0.03	0.15
Conifer	CAnurserySTD_V2_+0	20.80	13.40	7.07	<0.01	0.02	0.03	0.17
Conifer	ORnurserySTD_V2_+0	20.80	14.50	8.19	<0.01	0.02	0.03	0.18
Corn	MScornSTD_+0	37.20	24.40	14.30	<0.01	0.03	0.06	0.31
Corn	IACornstd_+0	29.40	17.90	9.02	<0.01	0.02	0.05	0.22
Corn	MScornSTD_+0	28.90	19.90	11.40	<0.01	0.02	0.05	0.25
Corn	KSCornStd_+0	27.10	18.80	9.62	<0.01	0.02	0.04	0.24
Corn	NECornStd_+0	27.00	18.90	10.10	<0.01	0.02	0.04	0.24
Corn	NECornStd_+0	26.80	17.40	9.29	<0.01	0.02	0.04	0.22
Corn	INCornStd_+0	25.90	17.90	10.10	<0.01	0.02	0.04	0.22
Corn	ILCornSTD_+0	25.20	15.80	8.34	<0.01	0.02	0.04	0.20
Corn	Tier1_+0	24.60	13.20	6.57	<0.01	0.02	0.04	0.17
Corn	CARowCropRLF_V2_+0	24.40	17.30	9.97	<0.01	0.02	0.04	0.22
Corn	ILCornSTD_+0	24.20	15.00	7.94	<0.01	0.02	0.04	0.19
Corn	PAcornSTD_+0	24.20	15.20	8.26	<0.01	0.02	0.04	0.19
Corn	CARowCropRLF_V2_+0	24.10	15.50	8.84	<0.01	0.02	0.04	0.19
Corn	NCcornWOP_+0	24.00	16.00	8.85	<0.01	0.02	0.04	0.20
Corn	KSCornStd_+0	23.80	16.30	8.42	<0.01	0.02	0.04	0.20
Corn	NCcornWOP_+0	23.10	16.70	10.20	<0.01	0.02	0.04	0.21
Corn	MNCornStd_+0	22.70	13.00	6.30	<0.01	0.02	0.04	0.16
Corn	CAcornOP_+0	21.90	15.00	7.88	<0.01	0.02	0.03	0.19
Corn	TXcornOP_+0	21.50	14.20	7.19	<0.01	0.02	0.03	0.18
Corn	INCornStd_+0	21.30	14.80	8.06	<0.01	0.02	0.03	0.19

Corn	MNCornStd_+0	21.30	12.90	6.18	<0.01	0.02	0.03	0.16
Corn	STXcornNMC_+0	21.20	12.10	5.85	<0.01	0.02	0.03	0.15
Corn	CAcornOP_+0	21.20	13.90	7.49	<0.01	0.02	0.03	0.17
Corn	NDcornOP_+0	21.20	13.70	7.12	<0.01	0.02	0.03	0.17
Corn	TXcornOP_+0	21.20	13.50	7.25	<0.01	0.02	0.03	0.17
Corn	IAcornstd_+0	21.20	13.90	7.36	<0.01	0.02	0.03	0.17
Corn	PAcornSTD_+0	21.20	15.10	9.00	<0.01	0.02	0.03	0.19
Corn	Tier1_+0	21.20	13.10	6.62	<0.01	0.02	0.03	0.16
Corn	STXcornNMC_+0	21.20	12.70	6.41	<0.01	0.02	0.03	0.16
Corn	NDcornOP_+0	21.20	13.00	6.48	<0.01	0.02	0.03	0.16
Cotton	MScottonSTD_+0	15.30	11.00	6.07	<0.01	0.01	0.02	0.14
Cotton	NCCottonSTD_+0	12.90	8.84	5.05	<0.01	0.01	0.02	0.11
Cotton	Tier1_+0	12.10	6.51	3.23	<0.01	<0.01	0.02	0.08
Cotton	CACotton_WirrigSTD_+0	11.30	7.22	3.82	<0.01	<0.01	0.02	0.09
Cotton	STXcottonNMC_+0	10.40	5.94	2.93	<0.01	<0.01	0.02	0.07
Dry Bean	Tier1_+0	29.10	20.00	11.60	<0.01	0.03	0.05	0.25
Dry Bean	ILbeansNMC_+0	27.40	19.10	12.30	<0.01	0.02	0.04	0.24
Dry Bean	ORsnbeansSTD_+0	24.50	18.40	13.20	<0.01	0.02	0.04	0.23
Dry Bean	Tier1_+0	22.60	15.50	8.98	<0.01	0.02	0.04	0.19
Dry Bean	WAbeansNMC_+0	22.00	14.90	10.00	<0.01	0.02	0.03	0.19
Dry Bean	ILbeansNMC_+0	21.20	14.90	9.57	<0.01	0.02	0.03	0.19
Dry Bean	ORsnbeansSTD_+0	19.00	14.30	10.20	<0.01	0.02	0.03	0.18
Dry Bean	Tier1_+0	17.80	11.50	7.13	<0.01	0.01	0.03	0.14
Dry Bean	WAbeansNMC_+0	17.10	11.60	7.80	<0.01	0.01	0.03	0.15
Dry Bean	ILbeansNMC_+0	16.80	11.70	7.89	<0.01	0.01	0.03	0.15
Dry Bean	ORsnbeansSTD_+0	15.30	11.70	8.58	<0.01	0.01	0.02	0.15
Dry Bean	WAbeansNMC_+0	13.20	9.55	6.79	<0.01	0.01	0.02	0.12
Dry Bean	ILbeansNMC_+0	11.00	7.56	4.14	<0.01	<0.01	0.02	0.09
Dry Bean	Tier1_+0	10.80	6.25	3.02	<0.01	<0.01	0.02	0.08
Dry Bean	ORsnbeansSTD_+0	10.80	7.53	4.35	<0.01	<0.01	0.02	0.09
Dry Bean	WAbeansNMC_+0	10.80	6.95	3.77	<0.01	<0.01	0.02	0.09

Ornamental	FLnurserySTD_V2_+0	52.40	34.00	17.80	<0.01	0.04	0.08	0.43
Ornamental	TNnurserySTD_V2_+0	52.00	37.60	22.70	<0.01	0.05	0.08	0.47
Ornamental	NJnurserySTD_V2_+0	51.80	32.40	17.00	<0.01	0.04	0.08	0.41
Ornamental	MInurserySTD_V2_+0	51.70	31.90	16.70	<0.01	0.04	0.08	0.40
Ornamental	ORnurserySTD_V2_+0	51.50	34.50	18.70	<0.01	0.04	0.08	0.43
Ornamental	NurseryBSS_V2_+0	51.50	33.50	17.40	<0.01	0.04	0.08	0.42
Ornamental	CAnurserySTD_V2_+0	51.40	32.90	17.70	<0.01	0.04	0.08	0.41
Ornamental	Tier1_+0	51.40	30.30	14.90	<0.01	0.04	0.08	0.38
Ornamental	NurseryBSS_V2_+0	32.60	21.10	11.40	<0.01	0.03	0.05	0.26
Ornamental	FLnurserySTD_V2_+0	29.80	17.50	8.81	<0.01	0.02	0.05	0.22
Ornamental	TNnurserySTD_V2_+0	25.60	17.30	10.70	<0.01	0.02	0.04	0.22
Ornamental	NJnurserySTD_V2_+0	23.20	14.50	7.70	<0.01	0.02	0.04	0.18
Ornamental	MInurserySTD_V2_+0	22.50	14.50	7.57	<0.01	0.02	0.04	0.18
Ornamental	Tier1_+0	21.90	12.60	6.29	<0.01	0.02	0.03	0.16
Ornamental	CAnurserySTD_V2_+0	21.50	13.80	7.31	<0.01	0.02	0.03	0.17
Ornamental	ORnurserySTD_V2_+0	21.50	15.00	8.46	<0.01	0.02	0.03	0.19
Potato	MEpotatoSTD_+0	51.70	33.20	19.60	<0.01	0.04	0.08	0.42
Potato	Tier1_+0	49.00	28.00	13.90	<0.01	0.04	0.08	0.35
Potato	Tier1_+0	38.40	21.50	12.90	<0.01	0.03	0.06	0.27
Potato	Tier1_+0	35.30	21.40	12.50	<0.01	0.03	0.06	0.27
Potato	IDNpotato_WirrigSTD_+0	35.30	25.90	13.60	<0.01	0.03	0.06	0.32
Potato	MEpotatoSTD_+0	28.30	18.10	11.90	<0.01	0.02	0.04	0.23
Potato	IDNpotato_WirrigSTD_+0	22.10	14.30	7.36	<0.01	0.02	0.04	0.18
Potato	MEpotatoSTD_+0	6.35	5.37	3.48	<0.01	<0.01	0.01	0.07
Potato	IDNpotato_WirrigSTD_+0	5.82	4.70	3.49	<0.01	<0.01	<0.01	0.06
Potato	Tier1_+0	5.67	4.29	3.10	<0.01	<0.01	<0.01	0.05
Safflower	TXwheatOP_+0	18.20	11.50	7.38	<0.01	0.01	0.03	0.14
Safflower	CAWheatRLF_V2_+0	14.50	9.86	5.79	<0.01	0.01	0.02	0.12
Safflower	CAWheatRLF_V2_+0	12.80	10.00	6.41	<0.01	0.01	0.02	0.13
Safflower	TXwheatOP_+0	12.40	8.65	4.96	<0.01	0.01	0.02	0.11
Safflower	NDcanolaSTD_+0	12.10	9.09	4.33	<0.01	0.01	0.02	0.11

Safflower	NDwheatSTD_+0	12.10	8.63	4.07	<0.01	0.01	0.02	0.11
Safflower	Tier1_+0	12.10	9.09	4.33	<0.01	0.01	0.02	0.11
Safflower	NDwheatSTD_-+0	11.10	6.66	3.62	<0.01	<0.01	0.02	0.08
Safflower	NDcanolaSTD_+0	10.80	6.63	3.54	<0.01	<0.01	0.02	0.08
Safflower	ORwheatOP_-+0	10.80	7.77	4.78	<0.01	<0.01	0.02	0.10
Safflower	Tier1_-+0	10.80	6.63	3.54	<0.01	<0.01	0.02	0.08
Safflower	ORwheatOP_-+0	10.80	7.54	4.44	<0.01	<0.01	0.02	0.09
Sugarbeet	Tier1_+0	16.20	9.34	5.21	<0.01	0.01	0.03	0.12
Sugarbeet	MNsugarbeetSTD_-+0	16.20	9.83	5.57	<0.01	0.01	0.03	0.12
Sugarbeet	CAsugarbeet_WirrigOP_-+0	16.00	11.80	7.54	<0.01	0.01	0.03	0.15
Sugarbeet	Tier1_-+0	12.10	9.10	4.34	<0.01	0.01	0.02	0.11
Sugarbeet	MNsugarbeetSTD_-+0	12.10	8.64	4.07	<0.01	0.01	0.02	0.11
Sugarbeet	CAsugarbeet_WirrigOP_-+0	11.10	8.62	5.78	<0.01	0.01	0.02	0.11
Sugarbeet	MNsugarbeetSTD_-+0	6.50	4.63	2.83	<0.01	<0.01	0.01	0.06
Sugarbeet	Tier1_-+0	4.82	3.59	2.29	<0.01	<0.01	<0.01	0.04
Sugarbeet	CAsugarbeet_WirrigOP_-+0	1.38	1.14	0.82	<0.01	<0.01	<0.01	0.01
Sunflower	TXwheatOP_-+0	21.90	14.60	8.68	<0.01	0.02	0.03	0.18
Sunflower	NDwheatSTD_-+0	16.40	9.97	5.50	<0.01	0.01	0.03	0.12
Sunflower	NDcanolaSTD_+0	16.20	9.34	5.21	<0.01	0.01	0.03	0.12
Sunflower	Tier1_-+0	16.20	9.34	5.21	<0.01	0.01	0.03	0.12
Sunflower	CAWheatRLE_V2_-+0	16.00	12.20	8.22	<0.01	0.02	0.03	0.15
Sunflower	ORwheatOP_-+0	16.00	12.20	7.42	<0.01	0.02	0.03	0.15
Sunflower	CAWheatRLF_V2_-+0	14.50	9.86	5.79	<0.01	0.01	0.02	0.12
Sunflower	TXwheatOP_-+0	12.40	8.65	4.96	<0.01	0.01	0.02	0.11
Sunflower	NDwheatSTD_-+0	11.10	6.66	3.62	<0.01	<0.01	0.02	0.08
Sunflower	NDcanolaSTD_+0	10.80	6.63	3.54	<0.01	<0.01	0.02	0.08
Sunflower	Tier1_-+0	10.80	6.63	3.54	<0.01	<0.01	0.02	0.08
Sunflower	ORwheatOP_-+0	10.80	7.77	4.78	<0.01	<0.01	0.02	0.10
Tomato	FLtomatoSTD_V2_-+0	11.10	8.61	5.43	<0.01	0.01	0.02	0.11
Tomato	PAtomatoSTD_-+0	11.10	8.61	5.43	<0.01	0.01	0.02	0.11
Tomato	Tier1_-+0	11.00	8.79	5.66	<0.01	0.01	0.02	0.11

Tomato	CAtomato_WirrigSTD_+0	11.00	9.03	6.47	<0.01	0.01	0.02	0.02	0.11
Walnut	CAalmond_WirrigSTD_+0	11.10	6.98	3.54	<0.01	<0.01	0.02	0.02	0.09
Walnut	Tier1_+0	11.00	6.29	3.14	<0.01	<0.01	0.02	0.02	0.08
Walnut	ORfilbertsSTD_+0	10.80	7.46	4.28	<0.01	<0.01	0.02	0.02	0.09
Walnut	ORappleSTD_+0	10.80	7.48	4.29	<0.01	<0.01	0.02	0.02	0.09
Walnut	CAOliverRLF_V2_+0	10.80	6.87	3.61	<0.01	<0.01	0.02	0.02	0.09
Walnut	WAorchardsNMC_+0	10.80	6.93	3.76	<0.01	<0.01	0.02	0.02	0.09
Walnut	ORappleSTD_+0	10.80	7.48	4.29	<0.01	<0.01	0.02	0.02	0.09
Walnut	ORfilbertsSTD_+0	10.80	7.46	4.28	<0.01	<0.01	0.02	0.02	0.09
Watermelon	NJmelonStd_+0	13.40	7.10	3.73	<0.01	<0.01	0.02	0.02	0.09
Watermelon	MOmelonStd_+0	12.40	8.35	4.42	<0.01	0.01	0.02	0.02	0.10
Watermelon	STXmelonNMC_+0	11.90	7.09	3.53	<0.01	<0.01	0.02	0.02	0.09
Watermelon	Tier1_+0	10.90	6.78	3.31	<0.01	<0.01	0.02	0.02	0.08
Watermelon	CAMelonsRLF_V2_+0	10.80	7.05	3.78	<0.01	<0.01	0.02	0.02	0.09
Watermelon	MImelonStd_+0	10.80	6.80	3.74	<0.01	<0.01	0.02	0.02	0.09

Aquatic Plant RQs for Emulsifiable Concentrate Formulations of EPTC

Uses	Scenario	Peak EECs	21-day EECs	60-day EECs	Nonvascular Plant Nonlisted RQ	Nonvascular Plant Listed RQ	Vascular Plant Nonlisted RQ	Vascular Plant Listed RQ
Agr_Fallow	Tier1_+0	21.00	12.10	5.71	0.02	0.02	<0.01	0.02
Agr_Fallow	RangeBSS_+0	21.00	13.40	6.67	0.02	0.02	<0.01	0.02
Agr_Fallow	MeadowBSS_+0	20.90	13.20	6.63	0.01	0.02	<0.01	0.02
Alfalfa	NCalfalfaOP_+0	22.00	14.70	11.50	0.02	0.02	<0.01	0.02
Alfalfa	TXalfalfaOP_+0	21.30	14.70	10.90	0.02	0.02	<0.01	0.02
Alfalfa	ILalfalfaNMC_+0	20.50	13.00	9.60	0.01	0.02	<0.01	0.02
Alfalfa	ILalfalfaNMC_+0	18.30	11.80	6.09	0.01	0.02	<0.01	0.02
Alfalfa	TXalfalfaOP_+0	17.90	11.80	6.81	0.01	0.02	<0.01	0.02
Alfalfa	PAalfalfaOP_+0	17.10	12.40	10.70	0.01	0.02	<0.01	0.02
Alfalfa	NCalfalfaOP_+0	17.10	10.80	5.65	0.01	0.02	<0.01	0.02

Alfalfa	PAalfalfaOP_+0	17.10	11.50	7.06	0.01	0.02	<0.01	0.02
Alfalfa	PAalfalfaOP_+0	16.30	10.20	5.41	0.01	0.02	<0.01	0.02
Alfalfa	TxalfalfaOP_+0	16.10	11.20	5.92	0.01	0.02	<0.01	0.02
Alfalfa	Tier1_+0	16.10	8.68	4.31	0.01	0.02	<0.01	0.02
Alfalfa	CAalfalfa_WirrigOP_+0	15.60	10.70	8.93	0.01	0.02	<0.01	0.02
Alfalfa	NCalfalfaOP_+0	15.20	11.50	6.67	0.01	0.02	<0.01	0.02
Alfalfa	Tier1_+0	14.80	8.64	7.01	0.01	0.02	<0.01	0.02
Alfalfa	ILalfalfaNMC_+0	14.80	10.20	5.24	0.01	0.02	<0.01	0.02
Alfalfa	MNalfalfaOP_+0	14.60	8.74	6.97	0.01	0.02	<0.01	0.02
Alfalfa	CAalfalfa_WirrigOP_+0	14.40	10.10	6.13	0.01	0.02	<0.01	0.02
Alfalfa	CAalfalfa_WirrigOP_+0	14.10	11.10	7.30	0.01	0.02	<0.01	0.02
Alfalfa	Tier1_+0	14.00	8.40	4.12	0.01	0.02	<0.01	0.02
Alfalfa	MNalfalfaOP_+0	13.90	8.95	4.52	<0.01	0.02	<0.01	0.02
Alfalfa	MNalfalfaOP_+0	13.90	8.89	4.25	<0.01	0.02	<0.01	0.02
Almond	Tier1_+0	20.70	20.00	18.90	0.01	0.02	<0.01	0.02
Almond	CAalmond_WirrigSTD_+0	15.20	10.40	7.92	0.01	0.02	<0.01	0.02
Carrot	FLcarrotSTD_+0	33.20	22.20	14.70	0.02	0.04	<0.01	0.04
Carrot	Tier1_+0	24.80	20.00	12.90	0.02	0.03	<0.01	0.03
Carrot	PavegetableNMC_+0	21.60	15.60	11.60	0.02	0.02	<0.01	0.02
Castor Bean	ILbeansNMC_+0	15.90	11.70	9.90	0.01	0.02	<0.01	0.02
Castor Bean	ORsnbeansSTD_+0	13.70	10.30	8.58	<0.01	0.02	<0.01	0.02
Castor Bean	WAbeansNMC_+0	12.50	9.26	7.62	<0.01	0.01	<0.01	0.01
Castor Bean	Tier1_+0	12.40	8.51	6.89	<0.01	0.01	<0.01	0.01
Castor Bean	ILbeansNMC_+0	8.62	5.38	2.90	<0.01	<0.01	<0.01	<0.01
Castor Bean	Tier1_+0	8.06	4.34	2.15	<0.01	<0.01	<0.01	<0.01
Castor Bean	ORsnbeansSTD_+0	7.24	5.46	3.16	<0.01	<0.01	<0.01	<0.01
Castor Bean	WAbeansNMC_+0	6.94	4.57	2.47	<0.01	<0.01	<0.01	<0.01
Citrus	FLcitrusSTD_+0	23.60	15.90	9.16	0.02	0.03	<0.01	0.03
Citrus	Tier1_+0	22.10	12.70	6.33	0.02	0.02	<0.01	0.02
Citrus	CACitrus_WirrigSTD_+0	21.70	14.00	7.45	0.02	0.02	<0.01	0.02
Citrus	STXgrapefruitNMC_+0	21.70	12.90	5.90	0.02	0.02	<0.01	0.02

Citrus	FlCitrusSTD_+0	11.70	7.89	4.54	<0.01	0.01	<0.01	0.01
Citrus	Tier1_+0	11.00	6.30	3.14	<0.01	0.01	<0.01	0.01
Citrus	CAcitrus_WirrigSTD_+0	10.80	6.95	3.70	<0.01	0.01	<0.01	0.01
Citrus	STYgrapefruitNMC_+0	10.80	6.40	2.93	<0.01	0.01	<0.01	0.01
Clover	NCalfalfaOP_+0	15.00	9.36	4.96	0.01	0.02	<0.01	0.02
Clover	PAalfalfaOP_+0	14.90	9.43	5.08	0.01	0.02	<0.01	0.02
Clover	Tier1_+0	14.10	8.33	3.99	0.01	0.02	<0.01	0.02
Clover	CAalfalfa_WirrigOP_+0	14.00	10.80	7.19	0.01	0.02	<0.01	0.02
Clover	ILalfalfaNMC_+0	14.00	9.50	4.80	0.01	0.02	<0.01	0.02
Clover	MNalfalfaOP_+0	13.90	8.55	4.20	<0.01	0.02	<0.01	0.02
Clover	TXalfalfaOP_+0	13.90	9.58	5.18	<0.01	0.02	<0.01	0.02
Conifer	NurseryBSS_V2_+0	31.60	20.40	11.00	0.02	0.04	<0.01	0.04
Conifer	FLnurserySTD_V2_+0	28.80	16.90	8.53	0.02	0.03	<0.01	0.03
Conifer	TNnurserySTD_V2_+0	24.80	16.70	10.40	0.02	0.03	<0.01	0.03
Conifer	NJnurserySTD_V2_+0	22.40	14.10	7.45	0.02	0.02	<0.01	0.03
Conifer	MinurserySTD_V2_+0	21.70	14.00	7.33	0.02	0.02	<0.01	0.02
Conifer	Tier1_+0	21.20	12.20	6.08	0.02	0.02	<0.01	0.02
Conifer	CAnurserySTD_V2_+0	20.80	13.40	7.07	0.01	0.02	<0.01	0.02
Conifer	ORnurserySTD_V2_+0	20.80	14.50	8.19	0.01	0.02	<0.01	0.02
Corn	MScornSTD_+0	37.20	24.40	14.30	0.03	0.04	<0.01	0.04
Corn	IACornstd_+0	29.40	17.90	9.02	0.02	0.03	<0.01	0.03
Corn	MScornSTD_+0	28.90	19.90	11.40	0.02	0.03	<0.01	0.03
Corn	KSCornStd_+0	27.10	18.80	9.62	0.02	0.03	<0.01	0.03
Corn	NECornStd_+0	27.00	18.90	10.10	0.02	0.03	<0.01	0.03
Corn	NECornStd_+0	26.80	17.40	9.29	0.02	0.03	<0.01	0.03
Corn	INCornStd_+0	25.90	17.90	10.10	0.02	0.03	<0.01	0.03
Corn	ILCornSTD_+0	25.20	15.80	8.34	0.02	0.03	<0.01	0.03
Corn	Tier1_+0	24.60	13.20	6.57	0.02	0.03	<0.01	0.03
Corn	CARowCropRLF_V2_+0	24.40	17.30	9.97	0.02	0.03	<0.01	0.03
Corn	ILCornSTD_+0	24.20	15.00	7.94	0.02	0.03	<0.01	0.03
Corn	PACornSTD_+0	24.20	15.20	8.26	0.02	0.03	<0.01	0.03

Corn	CARowCropRLF_V2_+0	24.10	15.50	8.84	0.02	0.03	<0.01	0.03
Corn	NCcornWOP_+0	24.00	16.00	8.85	0.02	0.03	<0.01	0.03
Corn	KSCornStd_+0	23.80	16.30	8.42	0.02	0.03	<0.01	0.03
Corn	NCcornWOP_+0	23.10	16.70	10.20	0.02	0.03	<0.01	0.03
Corn	MNCornStd_+0	22.70	13.00	6.30	0.02	0.03	<0.01	0.03
Corn	CAcornOP_+0	21.90	15.00	7.88	0.02	0.02	<0.01	0.02
Corn	TXcornOP_+0	21.50	14.20	7.19	0.02	0.02	<0.01	0.02
Corn	INCornStd_+0	21.30	14.80	8.06	0.02	0.02	<0.01	0.02
Corn	MNCornStd_+0	21.30	12.90	6.18	0.02	0.02	<0.01	0.02
Corn	STXcornNMC_+0	21.20	12.10	5.85	0.02	0.02	<0.01	0.02
Corn	CAcornOP_+0	21.20	13.90	7.49	0.02	0.02	<0.01	0.02
Corn	NDcornOP_+0	21.20	13.70	7.12	0.02	0.02	<0.01	0.02
Corn	TXcornOP_+0	21.20	13.50	7.25	0.02	0.02	<0.01	0.02
Corn	IAcornstd_+0	21.20	13.90	7.36	0.02	0.02	<0.01	0.02
Corn	PAcornSTD_+0	21.20	15.10	9.00	0.02	0.02	<0.01	0.02
Corn	Tier1_+0	21.20	13.10	6.62	0.02	0.02	<0.01	0.02
Corn	STXcornNMC_+0	21.20	12.70	6.41	0.02	0.02	<0.01	0.02
Corn	NDcornOP_+0	21.20	13.00	6.48	0.02	0.02	<0.01	0.02
Cotton	MScottonSTD_+0	15.30	11.00	6.07	0.01	0.02	<0.01	0.02
Cotton	NCcottonSTD_+0	12.90	8.84	5.05	<0.01	0.01	<0.01	0.01
Cotton	Tier1_+0	12.10	6.51	3.23	<0.01	0.01	<0.01	0.01
Cotton	CACotton_WirrigSTD_+0	11.30	7.22	3.82	<0.01	0.01	<0.01	0.01
Cotton	STXcottonNMC_+0	10.40	5.94	2.93	<0.01	0.01	<0.01	0.01
Dry Bean	Tier1_+0	29.10	20.00	11.60	0.02	0.03	<0.01	0.03
Dry Bean	IlbeansNMC_+0	27.40	19.10	12.30	0.02	0.03	<0.01	0.03
Dry Bean	ORsnbeansSTD_+0	24.50	18.40	13.20	0.02	0.03	<0.01	0.03
Dry Bean	Tier1_+0	22.60	15.50	8.98	0.02	0.03	<0.01	0.03
Dry Bean	WAbeansNMC_+0	22.00	14.90	10.00	0.02	0.02	<0.01	0.02
Dry Bean	IlbeansNMC_+0	21.20	14.90	9.57	0.02	0.02	<0.01	0.02
Dry Bean	ORsnbeansSTD_+0	19.00	14.30	10.20	0.01	0.02	<0.01	0.02
Dry Bean	Tier1_+0	17.80	11.50	7.13	0.01	0.02	<0.01	0.02

Dry Bean	WAbeansNMC_+0	17.10	11.60	7.80	0.01	0.02	<0.01	0.02
Dry Bean	ILbeansNMC_+0	16.80	11.70	7.89	0.01	0.02	<0.01	0.02
Dry Bean	ORsnbeansSTD_+0	15.30	11.70	8.58	0.01	0.02	<0.01	0.02
Dry Bean	WAbeansNMC_+0	13.20	9.55	6.79	<0.01	0.01	<0.01	0.01
Dry Bean	ILbeansNMC_+0	11.00	7.56	4.14	<0.01	0.01	<0.01	0.01
Dry Bean	Tier1_+0	10.80	6.25	3.02	<0.01	0.01	<0.01	0.01
Dry Bean	ORsnbeansSTD_+0	10.80	7.53	4.35	<0.01	0.01	<0.01	0.01
Dry Bean	WAbeansNMC_+0	10.80	6.95	3.77	<0.01	0.01	<0.01	0.01
Ornamental	FLnurserySTD_V2_+0	52.40	34.00	17.80	0.04	0.06	<0.01	0.06
Ornamental	TNnurserySTD_V2_+0	52.00	37.60	22.70	0.04	0.06	<0.01	0.06
Ornamental	NJnurserySTD_V2_+0	51.80	32.40	17.00	0.04	0.06	<0.01	0.06
Ornamental	MInurserySTD_V2_+0	51.70	31.90	16.70	0.04	0.06	<0.01	0.06
Ornamental	ORNurserySTD_V2_+0	51.50	34.50	18.70	0.04	0.06	<0.01	0.06
Ornamental	NurseryBSS_V2_+0	51.50	33.50	17.40	0.04	0.06	<0.01	0.06
Ornamental	CAnurserySTD_V2_+0	51.40	32.90	17.70	0.04	0.06	<0.01	0.06
Ornamental	Tier1_+0	51.40	30.30	14.90	0.04	0.06	<0.01	0.06
Ornamental	NurseryBSS_V2_+0	32.60	21.10	11.40	0.02	0.04	<0.01	0.04
Ornamental	FLnurserySTD_V2_+0	29.80	17.50	8.81	0.02	0.03	<0.01	0.03
Ornamental	TNnurserySTD_V2_+0	25.60	17.30	10.70	0.02	0.03	<0.01	0.03
Ornamental	NJnurserySTD_V2_+0	23.20	14.50	7.70	0.02	0.03	<0.01	0.03
Ornamental	MInurserySTD_V2_+0	22.50	14.50	7.57	0.02	0.03	<0.01	0.03
Ornamental	Tier1_+0	21.90	12.60	6.29	0.02	0.02	<0.01	0.02
Ornamental	CAnurserySTD_V2_+0	21.50	13.80	7.31	0.02	0.02	<0.01	0.02
Ornamental	ORNurserySTD_V2_+0	21.50	15.00	8.46	0.02	0.02	<0.01	0.02
Potato	MEpotatoSTD_+0	51.70	33.20	19.60	0.04	0.06	<0.01	0.06
Potato	Tier1_+0	49.00	28.00	13.90	0.04	0.05	<0.01	0.06
Potato	Tier1_+0	38.40	21.50	12.90	0.03	0.04	<0.01	0.04
Potato	Tier1_+0	35.30	21.40	12.50	0.03	0.04	<0.01	0.04
Potato	IDNpotato_WirrigSTD_+0	35.30	25.90	13.60	0.03	0.04	<0.01	0.04
Potato	MEpotatoSTD_+0	28.30	18.10	11.90	0.02	0.03	<0.01	0.03
Potato	IDNpotato_WirrigSTD_+0	22.10	14.30	7.36	0.02	0.02	<0.01	0.02

Potato	MEpotatoSTD_+0	6.35	5.37	3.48	<0.01	<0.01	<0.01	<0.01
Potato	IDNpotato_WirrigSTD_+0	5.82	4.70	3.49	<0.01	<0.01	<0.01	<0.01
Potato	Tier1_+0	5.67	4.29	3.10	<0.01	<0.01	<0.01	<0.01
Safflower	TXheatOP_+0	18.20	11.50	7.38	0.01	0.02	<0.01	0.02
Safflower	CAWheatRLF_V2_+0	14.50	9.86	5.79	0.01	0.02	<0.01	0.02
Safflower	CAWheatRLF_V2_+0	12.80	10.00	6.41	<0.01	0.01	<0.01	0.01
Safflower	TXheatOP_+0	12.40	8.65	4.96	<0.01	0.01	<0.01	0.01
Safflower	NDcanolaSTD_+0	12.10	9.09	4.33	<0.01	0.01	<0.01	0.01
Safflower	NDwheatSTD_+0	12.10	8.63	4.07	<0.01	0.01	<0.01	0.01
Safflower	Tier1_+0	12.10	9.09	4.33	<0.01	0.01	<0.01	0.01
Safflower	NDwheatSTD_+0	11.10	6.66	3.62	<0.01	0.01	<0.01	0.01
Safflower	NDcanolaSTD_+0	10.80	6.63	3.54	<0.01	0.01	<0.01	0.01
Safflower	ORwheatOP_+0	10.80	7.77	4.78	<0.01	0.01	<0.01	0.01
Safflower	Tier1_+0	10.80	6.63	3.54	<0.01	0.01	<0.01	0.01
Safflower	ORwheatOP_+0	10.80	7.54	4.44	<0.01	0.01	<0.01	0.01
Sugarbeet	Tier1_+0	16.20	9.34	5.21	0.01	0.02	<0.01	0.02
Sugarbeet	MNsugarbeetSTD_+0	16.20	9.83	5.57	0.01	0.02	<0.01	0.02
Sugarbeet	CA sugarbeet_WirrigOP_+0	16.00	11.80	7.54	0.01	0.02	<0.01	0.02
Sugarbeet	Tier1_+0	12.10	9.10	4.34	<0.01	0.01	<0.01	0.01
Sugarbeet	MNsugarbeetSTD_+0	12.10	8.64	4.07	<0.01	0.01	<0.01	0.01
Sugarbeet	CA sugarbeet_WirrigOP_+0	11.10	8.62	5.78	<0.01	0.01	<0.01	0.01
Sugarbeet	MNsugarbeetSTD_+0	6.50	4.63	2.83	<0.01	<0.01	<0.01	<0.01
Sugarbeet	Tier1_+0	4.82	3.59	2.29	<0.01	<0.01	<0.01	<0.01
Sugarbeet	CA sugarbeet_WirrigOP_+0	1.38	1.14	0.82	<0.01	<0.01	<0.01	<0.01
Sunflower	TXheatOP_+0	21.90	14.60	8.68	0.02	0.02	<0.01	0.02
Sunflower	NDwheatSTD_+0	16.40	9.97	5.50	0.01	0.02	<0.01	0.02
Sunflower	NDcanolaSTD_+0	16.20	9.34	5.21	0.01	0.02	<0.01	0.02
Sunflower	Tier1_+0	16.20	9.34	5.21	0.01	0.02	<0.01	0.02
Sunflower	CAWheatRLF_V2_+0	16.00	12.20	8.22	0.01	0.02	<0.01	0.02
Sunflower	ORwheatOP_+0	16.00	12.20	7.42	0.01	0.02	<0.01	0.02
Sunflower	CAWheatRLF_V2_+0	14.50	9.86	5.79	0.01	0.02	<0.01	0.02

Sunflower	TxwheatOP +0	12.40	8.65	4.96	<0.01	0.01	<0.01	0.01
Sunflower	NDwheatSTD +0	11.10	6.66	3.62	<0.01	0.01	<0.01	0.01
Sunflower	NDcanolaSTD +0	10.80	6.63	3.54	<0.01	0.01	<0.01	0.01
Sunflower	Tier1_+0	10.80	6.63	3.54	<0.01	0.01	<0.01	0.01
Sunflower	ORwheatOP +0	10.80	7.77	4.78	<0.01	0.01	<0.01	0.01
Tomato	FLtomatoSTD_V2_+0	11.10	8.61	5.43	<0.01	0.01	<0.01	0.01
Tomato	PAtomatoSTD +0	11.10	8.61	5.43	<0.01	0.01	<0.01	0.01
Tomato	Tier1_+0	11.00	8.79	5.66	<0.01	0.01	<0.01	0.01
Tomato	CAtomato_WirrigSTD_+0	11.00	9.03	6.47	<0.01	0.01	<0.01	0.01
Walnut	CAAlmond_WirrigSTD_+0	11.10	6.98	3.54	<0.01	0.01	<0.01	0.01
Walnut	Tier1_+0	11.00	6.29	3.14	<0.01	0.01	<0.01	0.01
Walnut	ORfilbertsSTD +0	10.80	7.46	4.28	<0.01	0.01	<0.01	0.01
Walnut	ORappleSTD_+0	10.80	7.48	4.29	<0.01	0.01	<0.01	0.01
Walnut	CAOliveRLF_V2_+0	10.80	6.87	3.61	<0.01	0.01	<0.01	0.01
Walnut	WAorchardsNMC_+0	10.80	6.93	3.76	<0.01	0.01	<0.01	0.01
Walnut	ORappleSTD_+0	10.80	7.48	4.29	<0.01	0.01	<0.01	0.01
Walnut	ORfilbertsSTD_+0	10.80	7.46	4.28	<0.01	0.01	<0.01	0.01
Watermelon	NJmelonStd_+0	13.40	7.10	3.73	<0.01	0.01	<0.01	0.02
Watermelon	MOmelonStd_+0	12.40	8.35	4.42	<0.01	0.01	<0.01	0.01
Watermelon	STXmelonNMC_+0	11.90	7.09	3.53	<0.01	0.01	<0.01	0.01
Watermelon	Tier1_+0	10.90	6.78	3.31	<0.01	0.01	<0.01	0.01
Watermelon	CAMelonsRLF_V2_+0	10.80	7.05	3.78	<0.01	0.01	<0.01	0.01
Watermelon	MImelonStd_+0	10.80	6.80	3.74	<0.01	0.01	<0.01	0.01

Granular Formulations
Fish RQs for Granular Formulations of EPTC

Uses	Scenario	Peak EECs	21-day EECs	60-day EECs	Acute Freshwater Fish RQ	Chronic Freshwater Fish RQ	Acute Saltwater Fish RQ	Chronic Saltwater Fish RQ
Ag_Fallow	Tier1_+0	1.50	0.74	0.37	<0.01	<0.01	<0.01	<0.01
Ag_Fallow	RangeBSS_+0	1.18	0.73	0.34	<0.01	<0.01	<0.01	<0.01
Ag_Fallow	MeadowBSS_+0	0.82	0.49	0.23	<0.01	<0.01	<0.01	<0.01
Alfalfa	TxalfalfaOP_+0	6.21	3.76	1.99	<0.01	0.05	<0.01	0.04
Alfalfa	NCalfalfaOP_+0	4.51	2.84	1.46	<0.01	0.04	<0.01	0.03
Alfalfa	Tier1_+0	4.13	2.03	1.02	<0.01	0.03	<0.01	0.02
Alfalfa	lalfalfaNMC_+0	3.41	1.95	1.03	<0.01	0.03	<0.01	0.02
Alfalfa	PAalfalfaOP_+0	2.81	1.86	1.03	<0.01	0.03	<0.01	0.02
Alfalfa	CAalfalfa_WirrigOP_+0	2.39	1.73	1.06	<0.01	0.03	<0.01	0.02
Alfalfa	MNalfalfaOP_+0	1.66	0.99	0.49	<0.01	0.01	<0.01	<0.01
Bean	lbeansNMC_+0	8.44	5.45	2.86	<0.01	0.07	<0.01	0.06
Bean	lbeansNMC_+0	7.73	5.57	3.06	<0.01	0.08	<0.01	0.06
Bean	lbeansNMC_+0	5.47	3.21	1.64	<0.01	0.04	<0.01	0.03
Bean	Tier1_+0	4.13	2.03	1.02	<0.01	0.03	<0.01	0.02
Bean	Tier1_+0	2.09	1.30	0.67	<0.01	0.02	<0.01	0.01
Bean	ORsnbeansSTD_+0	1.94	1.51	0.98	<0.01	0.02	<0.01	0.02
Bean	ORsnbeansSTD_+0	1.79	1.27	0.72	<0.01	0.02	<0.01	0.01
Bean	ORsnbeansSTD_+0	1.53	1.01	0.63	<0.01	0.02	<0.01	0.01
Bean	Tier1_+0	1.22	0.71	0.36	<0.01	<0.01	<0.01	<0.01
Bean	WAbeansNMC_+0	0.65	0.43	0.24	<0.01	<0.01	<0.01	<0.01
Bean	WAbeansNMC_+0	0.37	0.24	0.13	<0.01	<0.01	<0.01	<0.01
Bean	WAbeansNMC_+0	0.31	0.20	0.11	<0.01	<0.01	<0.01	<0.01
Citrus	FLcitrusSTD_+0	8.10	5.59	2.99	<0.01	0.07	<0.01	0.06
Citrus	STXgrapefruitNMC_+0	3.07	1.69	0.78	<0.01	0.02	<0.01	0.02
Citrus	Tier1_+0	2.21	1.42	0.74	<0.01	0.02	<0.01	0.01
Citrus	CAcitrus_WirrigSTD_+0	0.13	0.07	0.03	<0.01	<0.01	<0.01	<0.01

Conifers	NurseryBSS_V2_+0	16.50	9.88	4.92	<0.01	0.12	<0.01	0.10
Conifers	FLnurserySTD_V2_+0	9.70	5.77	2.96	<0.01	0.07	<0.01	0.06
Conifers	TNnurserySTD_V2_+0	4.59	3.05	1.84	<0.01	0.05	<0.01	0.04
Conifers	NlnurserySTD_V2_+0	2.82	1.67	0.89	<0.01	0.02	<0.01	0.02
Conifers	Tier1_+0	2.21	1.42	0.74	<0.01	0.02	<0.01	0.01
Conifers	MlnurserySTD_V2_+0	2.11	1.44	0.88	<0.01	0.02	<0.01	0.02
Conifers	ORnurserySTD_V2_+0	0.87	0.68	0.47	<0.01	0.01	<0.01	<0.01
Conifers	CAnurserySTD_V2_+0	0.00	0.00	0.00	<0.01	<0.01	<0.01	<0.01
Corn	MScornSTD_+0	15.70	10.70	6.13	<0.01	0.15	<0.01	0.12
Corn	NCCcornESTD_+0	3.31	2.02	1.08	<0.01	0.03	<0.01	0.02
Corn	KSCornStd_+0	9.32	6.09	3.18	<0.01	0.08	<0.01	0.06
Corn	ILCornSTD_+0	8.40	4.72	2.67	<0.01	0.07	<0.01	0.05
Corn	CAcornOP_+0	3.69	1.98	0.98	<0.01	0.02	<0.01	0.02
Corn	IAcornstd_+0	7.69	4.80	2.54	<0.01	0.06	<0.01	0.05
Corn	INCornStd_+0	7.26	4.83	2.70	<0.01	0.07	<0.01	0.05
Corn	CARowCropRLF_V2_+0	6.31	4.19	2.43	<0.01	0.06	<0.01	0.05
Corn	TXccornOP_+0	5.84	3.07	1.42	<0.01	0.04	<0.01	0.03
Corn	PACornSTD_+0	3.50	2.53	1.44	<0.01	0.04	<0.01	0.03
Corn	NDccornOP_+0	1.87	1.17	0.63	<0.01	0.02	<0.01	0.01
Corn	MNCornStd_+0	4.00	2.19	1.32	<0.01	0.03	<0.01	0.03
Corn	FLSweetcornOP_+0	27.60	13.90	6.21	<0.01	0.16	<0.01	0.12
Corn	NECornStd_+0	10.70	6.90	3.55	<0.01	0.09	<0.01	0.07
Corn	ORSwccornOP_+0	3.43	2.37	1.34	<0.01	0.03	<0.01	0.03
Dry Bean	IlbeansNMC_+0	11.40	7.58	3.95	<0.01	0.10	<0.01	0.08
Dry Bean	ORSnbbeansSTD_+0	3.97	3.13	2.12	<0.01	0.05	<0.01	0.04
Dry Bean	Tier1_+0	2.74	1.51	0.71	<0.01	0.02	<0.01	0.01
Dry Bean	WAbeansNMVC_+0	0.10	0.10	0.06	<0.01	<0.01	<0.01	<0.01
Potato	IDNpotato_WirrigSTD_+0	17.30	9.92	6.19	<0.01	0.15	<0.01	0.12
Potato	MEpotatoSTD_+0	11.70	7.36	3.92	<0.01	0.10	<0.01	0.08
Potato	IDNpotato_WirrigSTD_+0	7.79	5.76	3.10	<0.01	0.08	<0.01	0.06
Potato	MEpotatoSTD_+0	37.40	22.00	15.20	<0.01	0.38	<0.01	0.30

Potato	IDNpotato_WirrigSTD_+0	8.64	4.96	3.10	<0.01	0.08	<0.01	0.06
Potato	Tier1_+0	5.15	3.19	2.55	<0.01	0.06	<0.01	0.05
Corn	Tier1_+0	5.39	2.65	1.34	<0.01	0.03	<0.01	0.03
Potato	IDNpotato_WirrigSTD_+0	7.82	5.09	2.67	<0.01	0.07	<0.01	0.05
Potato	IDNpotato_WirrigSTD_+0	3.90	2.88	1.55	<0.01	0.04	<0.01	0.03
Potato	MEpotatoSTD_+0	18.70	11.00	7.59	<0.01	0.19	<0.01	0.15
Potato	Tier1_+0	2.57	1.59	1.27	<0.01	0.03	<0.01	0.03
Potato	Tier1_+0	33.20	18.10	8.65	<0.01	0.22	<0.01	0.17
Potato	Tier1_+0	20.80	11.90	5.91	<0.01	0.15	<0.01	0.12
Potato	IDNpotato_WirrigSTD_+0	3.91	2.54	1.34	<0.01	0.03	<0.01	0.03
Potato	MEpotatoSTD_+0	14.40	9.06	6.07	<0.01	0.15	<0.01	0.12
Potato	Tier1_+0	16.60	9.05	4.32	<0.01	0.11	<0.01	0.09
Potato	Tier1_+0	10.40	5.95	2.95	<0.01	0.07	<0.01	0.06
Potato	MEpotatoSTD_+0	7.18	4.53	3.04	<0.01	0.08	<0.01	0.06
Safflower	ORwheatOP_+0	1.23	0.90	0.58	<0.01	0.01	<0.01	0.01
Safflower	NDwheatSTD_+0	2.52	1.37	0.70	<0.01	0.02	<0.01	0.01
Safflower	NDcanolaSTD_+0	1.67	0.95	0.47	<0.01	0.01	<0.01	<0.01
Potato	MEpotatoSTD_+0	23.50	14.70	7.83	<0.01	0.20	<0.01	0.16
Safflower	Tier1_+0	1.67	0.95	0.47	<0.01	0.01	<0.01	<0.01
Safflower	CAWheatRLF_V2_+0	2.87	2.04	1.12	<0.01	0.03	<0.01	0.02
Sugarbeet	Tier1_+0	0.62	0.38	0.31	<0.01	<0.01	<0.01	<0.01
Sugarbeet	MNsugarbeetSTD_+0	3.44	1.75	1.30	<0.01	0.03	<0.01	0.03
Safflower	TXwheatOP_+0	3.52	2.33	1.26	<0.01	0.03	<0.01	0.03
Sunflower	ORwheatOP_+0	1.68	0.63	0.31	<0.01	<0.01	<0.01	<0.01
Sunflower	NDcanolaSTD_+0	0.61	0.33	0.19	<0.01	<0.01	<0.01	<0.01
Sunflower	NDwheatSTD_+0	3.23	0.84	0.40	<0.01	0.01	<0.01	<0.01
Sunflower	CAWheatRLF_V2_+0	2.39	1.20	0.57	<0.01	0.01	<0.01	0.01
Sugarbeet	CAsugarbeet_WirrigOP_+0	1.17	0.88	0.63	<0.01	0.02	<0.01	0.01
Sunflower	Tier1_+0	0.61	0.33	0.19	<0.01	<0.01	<0.01	<0.01

Aquatic Invertebrate RQs for Granular Formulations of EPTC

Uses	Scenario	Peak EECS	21-day EECS	60-day EECS	Acute Freshwater Invertebrate RQ	Chronic Freshwater Invertebrate RQ	Acute Saltwater Invertebrate RQ	Chronic Saltwater Invertebrate RQ
Ag_Fallow	Tier1_+0	1.50	0.74	0.37	<0.01	<0.01	<0.01	<0.01
Ag_Fallow	RangeBSS_+0	1.18	0.73	0.34	<0.01	<0.01	<0.01	<0.01
Ag_Fallow	MeadowBSS_+0	0.82	0.49	0.23	<0.01	<0.01	<0.01	<0.01
Alfalfa	TXalfalfaOP_+0	6.21	3.76	1.99	<0.01	<0.01	<0.01	0.05
Alfalfa	NCalfalfaOP_+0	4.51	2.84	1.46	<0.01	<0.01	<0.01	0.04
Alfalfa	Tier1_+0	4.13	2.03	1.02	<0.01	<0.01	<0.01	0.03
Alfalfa	ILalfalfaNMC_+0	3.41	1.95	1.03	<0.01	<0.01	<0.01	0.02
Alfalfa	PAalfalfaOP_+0	2.81	1.86	1.03	<0.01	<0.01	<0.01	0.02
Alfalfa	CAalfalfa_WirrigOP_+0	2.39	1.73	1.06	<0.01	<0.01	<0.01	0.02
Alfalfa	MNalfalfaOP_+0	1.66	0.99	0.49	<0.01	<0.01	<0.01	0.01
Bean	ILbeansNMC_+0	8.44	5.45	2.86	<0.01	<0.01	0.01	0.07
Bean	ILbeansNMC_+0	7.73	5.57	3.06	<0.01	<0.01	0.01	0.07
Bean	ILbeansNMC_+0	5.47	3.21	1.64	<0.01	<0.01	<0.01	0.04
Bean	Tier1_+0	4.13	2.03	1.02	<0.01	<0.01	<0.01	0.03
Bean	Tier1_+0	2.09	1.30	0.67	<0.01	<0.01	<0.01	0.02
Bean	ORbeansSTD_+0	1.94	1.51	0.98	<0.01	<0.01	<0.01	0.02
Bean	ORbeansSTD_+0	1.79	1.27	0.72	<0.01	<0.01	<0.01	0.02
Bean	ORbeansSTD_+0	1.53	1.01	0.63	<0.01	<0.01	<0.01	0.01
Bean	Tier1_+0	1.22	0.71	0.36	<0.01	<0.01	<0.01	<0.01
Bean	WAbeansNIMC_+0	0.65	0.43	0.24	<0.01	<0.01	<0.01	<0.01
Bean	WAbeansNIMC_+0	0.37	0.24	0.13	<0.01	<0.01	<0.01	<0.01
Bean	WAbeansNIMC_+0	0.31	0.20	0.11	<0.01	<0.01	<0.01	<0.01
Citrus	FLcitrusSTD_+0	8.10	5.59	2.99	<0.01	<0.01	0.01	0.07
Citrus	STXgrapefruitNIMC_+0	3.07	1.69	0.78	<0.01	<0.01	<0.01	0.02
Citrus	Tier1_+0	2.21	1.42	0.74	<0.01	<0.01	<0.01	0.02

Citrus	CAcitrus_WirrigSTD_+0	0.13	0.07	0.03	<0.01	<0.01	<0.01	<0.01
Conifers	NurseryBSS_V2_+0	16.50	9.88	4.92	<0.01	0.01	0.03	0.12
Conifers	FLnurserySTD_V2_+0	9.70	5.77	2.96	<0.01	<0.01	0.02	0.07
Conifers	TNnurserySTD_V2_+0	4.59	3.05	1.84	<0.01	<0.01	<0.01	0.04
Conifers	NJnurserySTD_V2_+0	2.82	1.67	0.89	<0.01	<0.01	<0.01	0.02
Conifers	Tier1_+0	2.21	1.42	0.74	<0.01	<0.01	<0.01	0.02
Conifers	MlnurserySTD_V2_+0	2.11	1.44	0.88	<0.01	<0.01	<0.01	0.02
Conifers	ORnurserySTD_V2_+0	0.87	0.68	0.47	<0.01	<0.01	<0.01	<0.01
Conifers	CAnurserySTD_V2_+0	0.00	0.00	0.00	<0.01	<0.01	<0.01	<0.01
Corn	MScornSTD_+0	15.70	10.70	6.13	<0.01	0.01	0.02	0.13
Corn	NCcornESTD_+0	3.31	2.02	1.08	<0.01	<0.01	<0.01	0.03
Corn	KSCornStd_+0	9.32	6.09	3.18	<0.01	<0.01	<0.01	0.08
Corn	ILCornSTD_+0	8.40	4.72	2.67	<0.01	<0.01	0.01	0.06
Corn	CAcornOP_+0	3.69	1.98	0.98	<0.01	<0.01	<0.01	0.02
Corn	lAcornstd_+0	7.69	4.80	2.54	<0.01	<0.01	<0.01	0.06
Corn	INCornStd_+0	7.26	4.83	2.70	<0.01	<0.01	0.01	0.06
Corn	CARowCropRLF_V2_+0	6.31	4.19	2.43	<0.01	<0.01	0.01	0.05
Corn	TXcornOP_+0	5.84	3.07	1.42	<0.01	<0.01	<0.01	0.04
Corn	PACornSTD_+0	3.50	2.53	1.44	<0.01	<0.01	<0.01	0.03
Corn	NDcornOP_+0	1.87	1.17	0.63	<0.01	<0.01	<0.01	0.01
Corn	MNCornStd_+0	4.00	2.19	1.32	<0.01	<0.01	<0.01	0.03
Corn	FlsweetcornOP_+0	27.60	13.90	6.21	<0.01	0.02	0.04	0.17
Corn	NEcornStd_+0	10.70	6.90	3.55	<0.01	<0.01	0.02	0.09
Corn	ORswcornOP_+0	3.43	2.37	1.34	<0.01	<0.01	<0.01	0.03
Dry Bean	lbeansNMC_+0	11.40	7.58	3.95	<0.01	<0.01	0.02	0.09
Dry Bean	ORsnsbeansSTD_+0	3.97	3.13	2.12	<0.01	<0.01	<0.01	0.04
Dry Bean	Tier1_+0	2.74	1.51	0.71	<0.01	<0.01	<0.01	0.02
Dry Bean	WAbeansNMC_+0	0.10	0.10	0.06	<0.01	<0.01	<0.01	<0.01
Potato	IDNPotato_WirrigSTD_+0	17.30	9.92	6.19	<0.01	0.01	0.03	0.12
Potato	MEpotatoSTD_+0	11.70	7.36	3.92	<0.01	<0.01	0.02	0.09

Potato	IDNpotato_WirrigSTD_+0	7.79	5.76	3.10	<0.01	0.01	0.07
Potato	MEpotatoSTD_+0	37.40	22.00	15.20	<0.01	0.03	0.06
Potato	IDNpotato_WirrigSTD_+0	8.64	4.96	3.10	<0.01	0.01	0.06
Potato	Tier1_+0	5.15	3.19	2.55	<0.01	<0.01	0.04
Corn	Tier1_+0	5.39	2.65	1.34	<0.01	<0.01	0.03
Potato	IDNpotato_WirrigSTD_+0	7.82	5.09	2.67	<0.01	0.01	0.06
Potato	IDNpotato_WirrigSTD_+0	3.90	2.88	1.55	<0.01	<0.01	0.04
Potato	MEpotatoSTD_+0	18.70	11.00	7.59	<0.01	0.01	0.14
Potato	Tier1_+0	2.57	1.59	1.27	<0.01	<0.01	0.02
Potato	Tier1_+0	33.20	18.10	8.65	<0.01	0.02	0.05
Potato	Tier1_+0	20.80	11.90	5.91	<0.01	0.01	0.03
Potato	IDNpotato_WirrigSTD_+0	3.91	2.54	1.34	<0.01	<0.01	0.03
Potato	MEpotatoSTD_+0	14.40	9.06	6.07	<0.01	0.01	0.11
Potato	Tier1_+0	16.60	9.05	4.32	<0.01	0.01	0.11
Potato	Tier1_+0	10.40	5.95	2.95	<0.01	<0.01	0.03
Potato	MEpotatoSTD_+0	7.18	4.53	3.04	<0.01	<0.01	0.06
Safflower	ORwheatOP_+0	1.23	0.90	0.58	<0.01	<0.01	0.01
Safflower	NDwheatSTD_+0	2.52	1.37	0.70	<0.01	<0.01	0.02
Safflower	NDcanolaSTD_+0	1.67	0.95	0.47	<0.01	<0.01	0.01
Potato	MEpotatoSTD_+0	23.50	14.70	7.83	<0.01	0.02	0.18
Safflower	Tier1_+0	1.67	0.95	0.47	<0.01	<0.01	0.01
Safflower	CAWheatRLF_V2_+0	2.87	2.04	1.12	<0.01	<0.01	0.03
Sugarbeet	Tier1_+0	0.62	0.38	0.31	<0.01	<0.01	<0.01
Sugarbeet	MNsugarbeetSTD_+0	3.44	1.75	1.30	<0.01	<0.01	0.02
Safflower	TXwheatOP_+0	3.52	2.33	1.26	<0.01	<0.01	0.03
Sunflower	ORwheatOP_+0	1.68	0.63	0.31	<0.01	<0.01	<0.01
Sunflower	NDcanolaSTD_+0	0.61	0.33	0.19	<0.01	<0.01	0.01
Sunflower	NDwheatSTD_+0	3.23	0.84	0.40	<0.01	<0.01	0.02
Sunflower	CAWheatRLF_V2_+0	2.39	1.20	0.57	<0.01	<0.01	0.01
Sugarbeet	CA sugarbeet_WirrigOP_+0	1.17	0.88	0.63	<0.01	<0.01	<0.01

Sunflower	Tier1_+0	0.61	0.33	0.19	<0.01	<0.01	<0.01	<0.01
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Aquatic Plant RQs for Granular Formulations of EPTC

Uses	Scenario	Peack EECs	21- day EECs	60- day EECs	Nonvascular Plant Nonlisted RQ	Nonvascular Plant Listed RQ	Vascular Plant Nonlisted RQ	Vascular Plant Listed RQ
Ag_Fallow	Tier1_+0	1.50	0.74	0.37	<0.01	<0.01	<0.01	<0.01
Ag_Fallow	RangeBSS_+0	1.18	0.73	0.34	<0.01	<0.01	<0.01	<0.01
Ag_Fallow	MeadowBSS_+0	0.82	0.49	0.23	<0.01	<0.01	<0.01	<0.01
Alfalfa	TxalfalfaOP_+0	6.21	3.76	1.99	<0.01	<0.01	<0.01	<0.01
Alfalfa	NCalfalfaOP_+0	4.51	2.84	1.46	<0.01	<0.01	<0.01	<0.01
Alfalfa	Tier1_+0	4.13	2.03	1.02	<0.01	<0.01	<0.01	<0.01
Alfalfa	lLalfalfaNMC_+0	3.41	1.95	1.03	<0.01	<0.01	<0.01	<0.01
Alfalfa	PAalfalfaOP_+0	2.81	1.86	1.03	<0.01	<0.01	<0.01	<0.01
Alfalfa	CAalfalfa_WirrigOP_+0	2.39	1.73	1.06	<0.01	<0.01	<0.01	<0.01
Alfalfa	MNalfalfaOP_+0	1.66	0.99	0.49	<0.01	<0.01	<0.01	<0.01
Bean	lbeansNMC_+0	8.44	5.45	2.86	<0.01	<0.01	<0.01	<0.01
Bean	lbeansNMC_+0	7.73	5.57	3.06	<0.01	<0.01	<0.01	<0.01
Bean	lbeansNMC_+0	5.47	3.21	1.64	<0.01	<0.01	<0.01	<0.01
Bean	Tier1_+0	4.13	2.03	1.02	<0.01	<0.01	<0.01	<0.01
Bean	Tier1_+0	2.09	1.30	0.67	<0.01	<0.01	<0.01	<0.01
Bean	ORsnbeansSTD_+0	1.94	1.51	0.98	<0.01	<0.01	<0.01	<0.01
Bean	ORsnbeansSTD_+0	1.79	1.27	0.72	<0.01	<0.01	<0.01	<0.01
Bean	ORsnbeansSTD_+0	1.53	1.01	0.63	<0.01	<0.01	<0.01	<0.01
Bean	Tier1_+0	1.22	0.71	0.36	<0.01	<0.01	<0.01	<0.01
Bean	WAbbeansNIMC_+0	0.65	0.43	0.24	<0.01	<0.01	<0.01	<0.01
Bean	WAbbeansNIMC_+0	0.37	0.24	0.13	<0.01	<0.01	<0.01	<0.01
Bean	WAbbeansNIMC_+0	0.31	0.20	0.11	<0.01	<0.01	<0.01	<0.01
Citrus	FLcitrusSTD_+0	8.10	5.59	2.99	<0.01	<0.01	<0.01	<0.01

Citrus	STXgrapefruitNMC_+0	3.07	1.69	0.78	<0.01	<0.01	<0.01	<0.01
Citrus	Tier1_+0	2.21	1.42	0.74	<0.01	<0.01	<0.01	<0.01
Citrus	CAcitrus_WirrigSTD_+0	0.13	0.07	0.03	<0.01	<0.01	<0.01	<0.01
Conifers	NurseryBSS_V2_+0	16.50	9.88	4.92	0.01	0.02	<0.01	0.02
Conifers	FLnurserySTD_V2_+0	9.70	5.77	2.96	<0.01	0.01	<0.01	0.01
Conifers	TNnurserySTD_V2_+0	4.59	3.05	1.84	<0.01	<0.01	<0.01	<0.01
Conifers	MnurserySTD_V2_+0	2.82	1.67	0.89	<0.01	<0.01	<0.01	<0.01
Conifers	Tier1_+0	2.21	1.42	0.74	<0.01	<0.01	<0.01	<0.01
Conifers	MlnurserySTD_V2_+0	2.11	1.44	0.88	<0.01	<0.01	<0.01	<0.01
Conifers	ORnurserySTD_V2_+0	0.87	0.68	0.47	<0.01	<0.01	<0.01	<0.01
Conifers	CAnurserySTD_V2_+0	0.00	0.00	0.00	<0.01	<0.01	<0.01	<0.01
Corn	MScornSTD_+0	15.70	10.70	6.13	0.01	0.02	<0.01	0.02
Corn	NCCornESTD_+0	3.31	2.02	1.08	<0.01	<0.01	<0.01	<0.01
Corn	KSCornStd_+0	9.32	6.09	3.18	<0.01	0.01	<0.01	0.01
Corn	LCornSTD_+0	8.40	4.72	2.67	<0.01	<0.01	<0.01	<0.01
Corn	ACornOP_+0	3.69	1.98	0.98	<0.01	<0.01	<0.01	<0.01
Corn	lAcornstd_+0	7.69	4.80	2.54	<0.01	<0.01	<0.01	<0.01
Corn	INCornStd_+0	7.26	4.83	2.70	<0.01	<0.01	<0.01	<0.01
Corn	CARowCropRLF_V2_+0	6.31	4.19	2.43	<0.01	<0.01	<0.01	<0.01
Corn	TXcornOP_+0	5.84	3.07	1.42	<0.01	<0.01	<0.01	<0.01
Corn	PACornSTD_+0	3.50	2.53	1.44	<0.01	<0.01	<0.01	<0.01
Corn	NDcornOP_+0	1.87	1.17	0.63	<0.01	<0.01	<0.01	<0.01
Corn	MNCornStd_+0	4.00	2.19	1.32	<0.01	<0.01	<0.01	<0.01
Corn	FLsweetcornOP_+0	27.60	13.90	6.21	0.02	0.03	<0.01	0.03
Corn	NECornStd_+0	10.70	6.90	3.55	<0.01	0.01	<0.01	0.01
Corn	ORswcornOP_+0	3.43	2.37	1.34	<0.01	<0.01	<0.01	<0.01
Dry Bean	lbeansNMC_+0	11.40	7.58	3.95	<0.01	0.01	<0.01	0.01
Dry Bean	ORsunbeansSTD_+0	3.97	3.13	2.12	<0.01	<0.01	<0.01	<0.01
Dry Bean	Tier1_+0	2.74	1.51	0.71	<0.01	<0.01	<0.01	<0.01
Dry Bean	WAbeansNMC_+0	0.10	0.10	0.06	<0.01	<0.01	<0.01	<0.01

Potato	IDNpotato_WirrigSTD_+0	17.30	9.92	6.19	0.01	0.02	<0.01	0.02
Potato	MEpotatoSTD_+0	11.70	7.36	3.92	<0.01	0.01	<0.01	0.01
Potato	IDNpotato_WirrigSTD_+0	7.79	5.76	3.10	<0.01	<0.01	<0.01	<0.01
Potato	MEpotatoSTD_+0	37.40	22.00	15.20	0.03	0.04	<0.01	0.04
Potato	IDNpotato_WirrigSTD_+0	8.64	4.96	3.10	<0.01	<0.01	<0.01	<0.01
Potato	Tier1_+0	5.15	3.19	2.55	<0.01	<0.01	<0.01	<0.01
Corn	Tier1_+0	5.39	2.65	1.34	<0.01	<0.01	<0.01	<0.01
Potato	IDNpotato_WirrigSTD_+0	7.82	5.09	2.67	<0.01	<0.01	<0.01	<0.01
Potato	IDNpotato_WirrigSTD_+0	3.90	2.88	1.55	<0.01	<0.01	<0.01	<0.01
Potato	MEpotatoSTD_+0	18.70	11.00	7.59	0.01	0.02	<0.01	0.02
Potato	Tier1_+0	2.57	1.59	1.27	<0.01	<0.01	<0.01	<0.01
Potato	Tier1_+0	33.20	18.10	8.65	0.02	0.04	<0.01	0.04
Potato	Tier1_+0	20.80	11.90	5.91	0.01	0.02	<0.01	0.02
Potato	IDNpotato_WirrigSTD_+0	3.91	2.54	1.34	<0.01	<0.01	<0.01	<0.01
Potato	MEpotatoSTD_+0	14.40	9.06	6.07	0.01	0.02	<0.01	0.02
Potato	Tier1_+0	16.60	9.05	4.32	0.01	0.02	<0.01	0.02
Potato	Tier1_+0	10.40	5.95	2.95	<0.01	0.01	<0.01	0.01
Potato	MEpotatoSTD_+0	7.18	4.53	3.04	<0.01	<0.01	<0.01	<0.01
Safflower	ORwheatOP_+0	1.23	0.90	0.58	<0.01	<0.01	<0.01	<0.01
Safflower	NDwheatSTD_+0	2.52	1.37	0.70	<0.01	<0.01	<0.01	<0.01
Safflower	NDcanolaSTD_+0	1.67	0.95	0.47	<0.01	<0.01	<0.01	<0.01
Potato	MEpotatoSTD_+0	23.50	14.70	7.83	0.02	0.03	<0.01	0.03
Safflower	Tier1_+0	1.67	0.95	0.47	<0.01	<0.01	<0.01	<0.01
Safflower	CAWheatRLF_V2_+0	2.87	2.04	1.12	<0.01	<0.01	<0.01	<0.01
Sugarbeet	Tier1_+0	0.62	0.38	0.31	<0.01	<0.01	<0.01	<0.01
Sugarbeet	MNsugarbeetSTD_+0	3.44	1.75	1.30	<0.01	<0.01	<0.01	<0.01
Safflower	TXwheatOP_+0	3.52	2.33	1.26	<0.01	<0.01	<0.01	<0.01
Sunflower	ORwheatOP_+0	1.68	0.63	0.31	<0.01	<0.01	<0.01	<0.01
Sunflower	NDcanolaSTD_+0	0.61	0.33	0.19	<0.01	<0.01	<0.01	<0.01
Sunflower	NDwheatSTD_+0	3.23	0.84	0.40	<0.01	<0.01	<0.01	<0.01

Sunflower	CAWheatRLF_V2_+0	2.39	1.20	0.57	<0.01	<0.01	<0.01	<0.01
Sugarbeet	CA sugarbeet_WirrigOP_+0	1.17	0.88	0.63	<0.01	<0.01	<0.01	<0.01
Sunflower	Tier1_+0	0.61	0.33	0.19	<0.01	<0.01	<0.01	<0.01

Appendix A. Summary of EPTC Use Rates

Site Desc	Reg#	AI%	Formulation Desc	A. I. Max App Rate	A. I. Max App Unit	Max # Apps @ Max Rate /CC	A. I. Max App Rate/Year	Minimum Retreatment Interval	Application Method Type	Application Equipment	Application Timing	Incorporation Depth	Comments
AGRICULTURAL FALLOW/IDLELAND / CONSERVATION RESERVE	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 4 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
AGRICULTURAL FALLOW/IDLELAND / CONSERVATION RESERVE	10163-281	20	G	6	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 4 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ALFALFA	10163-281	20	G	4	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Western,Pacific Northwest,Northern Allowable Geo Area:

ALFALFA	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Chemigation system (e.g., sprinkler, solid set, wheel line, linear, center pivot, flood, drip, furrow, or trickle)	Incorporate to a maximum depth of 3 inches.
ALFALFA	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Chemigation.	Established plantings.
ALFALFA	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Chemigation.	Incorporate to a maximum depth of 3 inches.
ALFALFA	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Chemigation.	Incorporate to a maximum depth of 3 inches.
ALFALFA	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Chemigation.	Incorporate to a maximum depth of 3 inches.
ALFALFA	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Chemigation.	Incorporate to a maximum depth of 3 inches.
ALFALFA	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	Soil incorporated treatment.	Incorporate to a maximum depth of 3 inches.
ALFALFA	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	Chemigation.	Incorporate to a maximum depth of 3 inches.
ALFALFA	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	Soil incorporation equipment.	Incorporate to a maximum depth of 3 inches.
ALFALFA	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	Postplant.	Incorporate to a maximum depth of 3 inches.
ALFALFA	10163-283	87.8	EC	3.9213675	lb / a	NS	NS	Postplant.	Incorporate to a maximum depth of 3 inches.
ALFALFA	10163-283	87.8	EC	3.9213675	lb / a	NS	NS	Preplant.	Incorporate to a maximum depth of 3 inches.

ALFALFA	19713-101	87.8	EC	3.74082875	lb / a	NS	NS	Soil incorporated treatment.	Ground	Preplant.	Incorporate to a maximum depth of 3 inches.
ALFALFA	19713-101	87.8	EC	3.0806825	lb / a	NS	12.32273 lb / a	Chemigation.	Sprinkler irrigation.	Established plantings.	Incorporate to a maximum depth of 3 inches.
ALFALFA	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Early summer.	Incorporate to a maximum depth of 3 inches.
ALFALFA	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Spring.	Incorporate to a maximum depth of 3 inches.
ALFALFA	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Chemigation.	Sprinkler system.	Established plantings.	Incorporate to a maximum depth of 3 inches.
ALFALFA	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil incorporated treatment.	Sprayer.	Preplant.	Incorporate to a maximum depth of 3 inches.
ALFALFA	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Early summer.	Incorporate to a maximum depth of 3 inches.
ALFALFA	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Spring.	Incorporate to a maximum depth of 3 inches.
ALFALFA	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil incorporated treatment.	Ground	Preplant.	Incorporate to a maximum depth of 3 inches.
ALFALFA	10163-283	87.8	EC	3.049525	lb / a	NS	12.19981 lb / a	Chemigation.	Sprinkler irrigation.	Established plantings.	Incorporate to a maximum depth of 3 inches.
											Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
											Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
											Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
											Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
											Buffer Restriction: Disallowed Geo Area: Northern, Southwest Allowable Geo Area:
											Buffer Restriction: Disallowed Geo Area: Southeast, Southwest Allowable Geo Area:
											Buffer Restriction: Disallowed Geo Area: Southeast, Northern, Pacific Northwest, Western, Southwest Allowable Geo Area:
											Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
											Buffer Restriction: Disallowed Geo Area: Southeast, Southwest Allowable Geo Area:
											Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:

ALFALFA	10163-281	20	G	3	lb / a	NS	12 lb / a	30 d	Broadcast	Aerial	Established plantings.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ALFALFA	10163-281	20	G	3	lb / a	NS	12 lb / a	30 d	Broadcast	Ground	Established plantings.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ALFALFA	10163-281	20	G	3	lb / a	NS	12 lb / a	30 d	Soil incorporated treatment by irrigation.	Sprinkler irrigation.	Established plantings.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ALFALFA	10163-281	20	G	3	lb / a	NS	12 lb / a	30 d	Soil incorporated treatment.	Ground	Preplant.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ALMOND	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Chemigation.	Sprinkler irrigation.	Postemergence.	Incorporate to a maximum depth of 3 inches.		Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
ALMOND	19713-561	87.8	EC	3.06448011	lb / a	2	6.12896022 lb / a	NS	Chemigation.	Sprinkler irrigation.	Postemergence.	Incorporate to a maximum depth of 3 inches.		Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
ALMOND	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	NS	Chemigation.	Sprinkler irrigation.	Postemergence.			Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS	10163-281	20	G	4	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	At planting.			Buffer Restriction: Disallowed Geo Area: Northern, Pacific Northwest Allowable Geo Area:
BEANS	10163-281	20	G	4	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Postplant.			Buffer Restriction: Disallowed Geo Area: Pacific Northwest/Northern Allowable Geo Area:
BEANS	10163-281	20	G	4	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.			Buffer Restriction: Disallowed Geo Area: Pacific Northwest, Northern Allowable Geo Area:
BEANS	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	NS	Directed spray.	Soil incorporation equipment.	Lay-by.	Incorporate to a maximum depth of 3 inches.		Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:

BEANS	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Directed spray.	Low pressure.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northern Allowable Geo Area:		
BEANS	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Soil incorporated treatment.	Ground	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northern Allowable Geo Area:		
BEANS	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Postplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:		
BEANS	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:		
BEANS	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Directed spray.	Ground	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:		
BEANS	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Soil incorporated treatment.	Ground	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:		
BEANS	19713-101	87.8	EC	3.94004585	lb / a	NS	NS	Directed spray.	Mechanical sprayer.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:		
BEANS	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	Directed spray.	Ground	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northern Allowable Geo Area:		
BEANS	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	Directed spray.	Ground	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northern Allowable Geo Area:		
BEANS	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northern Allowable Geo Area:		
BEANS	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	Directed spray.	Sprayer.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:		

BEANS	19713-561	87.8	EC	3.9404585	lb / a	NS	NS	Soil incorporated treatment.	Ground	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:	
BEANS	19713-561	87.8	EC	3.9404585	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:	
BEANS	10163-283	87.8	EC	3.9213675	lb / a	NS	NS	Directed spray.	Soil incorporation equipment.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	
BEANS	10163-283	87.8	EC	3.9213675	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	
BEANS	10163-283	87.8	EC	3.9213675	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	
BEANS	10163-283	87.8	EC	3.9213675	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	
BEANS	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Directed spray.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest,Southeast Allowable Geo Area:	
BEANS	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil broadcast treatment.	Soil incorporation equipment.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest,Southeast Allowable Geo Area:	
BEANS	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest,Southeast Allowable Geo Area:	
BEANS	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil injection treatment.	Ground	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest,Allowable Geo Area:	
BEANS	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil injection treatment.	Ground	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest,Allowable Geo Area:	
BEANS	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil broadcast treatment.	Soil injector equipment.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western,Allowable Geo Area:	

BEANS	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 3 inches.
BEANS	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 3 inches.
BEANS	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 3 inches.
BEANS	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 3 inches.
BEANS	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 3 inches.
BEANS	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 3 inches.
BEANS	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 3 inches.
BEANS	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 3 inches.
BEANS	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 3 inches.
BEANS	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 3 inches.
														Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:

BEANS	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	Soil broadcast treatment.	Injection equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	Soil broadcast treatment.	Injection equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	Soil incorporated treatment.	Sprayer.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	Soil incorporated treatment.	Sprayer.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	Soil injection treatment.	Injection equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	Soil injection treatment.	Injection equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	Soil broadcast treatment.	Soil injector equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	Soil broadcast treatment.	Soil injector equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	Soil injection treatment.	Soil injector equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	Soil injection treatment.	Soil injector equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS	10163-283	87.8	EC	3.049525	lb / a	NS	NS	NS	Soil broadcast treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:

BEANS	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	NS	NS	NS	NS	Soil incorporated treatment.	Ground	Preplant.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	NS	NS	NS	NS	Soil injection treatment.	Soil injector equipment.	Lay-by.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
BEANS	10163-281	20	G	3	lb / a	NS	NS	NS	NS	NS	NS	Soil incorporated treatment.	Granule applicator.	At planting.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
BEANS	10163-281	20	G	3	lb / a	NS	NS	NS	NS	NS	NS	Soil incorporated treatment.	Granule applicator.	Postplant.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
BEANS	10163-281	20	G	3	lb / a	NS	NS	NS	NS	NS	NS	Soil incorporated treatment.	Granule applicator.	Preplant.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
BEANS	19713-101	87.8	EC	1.98043875	lb / a	NS	NS	NS	NS	NS	NS	Soil band treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.
BEANS	19713-101	87.8	EC	1.98043875	lb / a	NS	NS	NS	NS	NS	NS	Soil injection treatment.	Low pressure.	At planting.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS	19713-101	87.8	EC	1.98043875	lb / a	NS	NS	NS	NS	NS	NS	Soil injection treatment.	Low pressure.	Preplant.	Incorporate to a maximum depth of 3 inches.
BEANS	19713-561	87.8	EC	1.97002293	lb / a	NS	NS	NS	NS	NS	NS	Directed spray.	Soil injector equipment.	At planting.	Incorporate to a maximum depth of 3 inches.
BEANS	19713-561	87.8	EC	1.97002293	lb / a	NS	NS	NS	NS	NS	NS	Soil band treatment.	Band sprayer.	Plant bed.	Incorporate to a maximum depth of 3 inches.
BEANS	19713-561	87.8	EC	1.97002293	lb / a	NS	NS	NS	NS	NS	NS	Soil band treatment.	Band sprayer.	Preplant.	Incorporate to a maximum depth of 3 inches.

BEANS	10163-283	87.8	EC	1.96068375	lb / a	NS	NS	Soil band treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS	10163-283	87.8	EC	1.96068375	lb / a	NS	NS	Soil injection treatment.	Soil injector equipment.	At planting.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
BEANS	10163-283	87.8	EC	1.96068375	lb / a	NS	NS	Soil injection treatment.	Soil injector equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
BEANS	19713-101	87.8	EC	1.54034125	lb / a	NS	NS	Soil band treatment.	Soil injector equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS	19713-101	87.8	EC	1.54034125	lb / a	NS	NS	Soil band treatment.	Injection equipment.	Lay-by.		Incorporate to a maximum depth of 3 inches.
BEANS	19713-561	87.8	EC	1.53224005	lb / a	NS	NS	Soil broadcast treatment.	Sprayer.	Lay-by.		Incorporate to a maximum depth of 3 inches.
BEANS	19713-561	87.8	EC	1.53224005	lb / a	NS	NS	Soil band treatment.	Injection equipment.	Preplant.		Incorporate to a maximum depth of 3 inches.
BEANS	19713-561	87.8	EC	1.53224005	lb / a	NS	NS	Soil band treatment.	Injection equipment.	At planting.		Incorporate to a maximum depth of 3 inches.
BEANS	19713-561	87.8	EC	1.53224005	lb / a	NS	NS	Soil band treatment.	Soil injector equipment.	Preplant.		Incorporate to a maximum depth of 3 inches.
BEANS	19713-561	87.8	EC	1.53224005	lb / a	NS	NS	Soil band treatment.	Soil injector equipment.	At planting.		Incorporate to a maximum depth of 3 inches.
BEANS	10163-283	87.8	EC	1.52497625	lb / a	NS	NS	Soil band treatment.	Soil injector equipment.	Lay-by.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:

BEANS, DRIED-TYPE	19713-561	87.8	EC	4.59672016	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant (Fall).	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: North Dakota;Minnesota Allowable Geo Area:
BEANS, DRIED-TYPE	10163-283	87.8	EC	4.57492875	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Fall.		Buffer Restriction: Disallowed Geo Area: Minnesota,North Dakota Allowable Geo Area:
BEANS, DRIED-TYPE	10163-281	20	G	4.5	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Fall.		Buffer Restriction: Disallowed Geo Area: Minnesota,North Dakota Allowable Geo Area:
BEANS, DRIED-TYPE	10163-281	20	G	4	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	At planting.		Buffer Restriction: Disallowed Geo Area: Pacific Northwest;Northern Allowable Geo Area:
BEANS, DRIED-TYPE	10163-281	20	G	4	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Postplant.		Buffer Restriction: Disallowed Geo Area: Northern,Pacific Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	10163-281	20	G	4	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Pacific Northwest;Northern Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.9608775	lb / a	1	NS	NS	Soil incorporated treatment.	Fall.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Minnesota,North Dakota Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast/Western,Southwest Pacific Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Directed spray.	Soil incorporation equipment.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Chemigation.	Chemigation irrigation system (e.g., sprinkler, solid set, wheel line, linear, center-pivot,flood, drip , furrow, or trickle)	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northern Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Directed spray.	Low pressure.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northern Allowable Geo Area:

BEANS, DRIED-TYPE	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	NS	Soil incorporated treatment.	Ground	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northern Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	NS	Chemigation.	Sprinkler irrigation.	Postplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	NS	Chemigation.	Sprinkler irrigation.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	NS	Directed spray.	Ground	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	NS	Soil incorporated treatment.	Ground	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	NS	Chemigation.	Sprinkler.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest/Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	NS	Chemigation.	Sprinkler system.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest/Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	NS	Directed spray.	Mechanical sprayer.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	NS	Chemigation.	Sprinkler irrigation.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northern Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	NS	Directed spray.	Ground	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northern Allowable Geo Area:

BEANS, DRIED-TYPE	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northern Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	Chemigation.	Chemigation irrigation system (e.g., sprinkler, solid set, wheel line, linear, center-pivot, flood, drip, furrow, or trickle)	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	Directed spray.	Sprayer.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	Soil incorporated treatment.	Ground	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	10163-283	87.8	EC	3.9213675	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Postemergence.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
BEANS, DRIED-TYPE	10163-283	87.8	EC	3.9213675	lb / a	NS	NS	Directed spray.	Soil incorporation equipment.	Lay-by.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
BEANS, DRIED-TYPE	10163-283	87.8	EC	3.9213675	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	At planting.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
BEANS, DRIED-TYPE	10163-283	87.8	EC	3.9213675	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Directed spray.	Sprayer.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest,Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil broadcast treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:

BEANS, DRIED-TYPE	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil incorporated treatment.	Sprayer.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest,Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil injection treatment.	Ground	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil injection treatment.	Ground	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil broadcast treatment.	Soil injector equipment.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil injection treatment.	Soil injector equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil injection treatment.	Injection equipment.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil injection treatment.	Injection equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil injection treatment.	Injection equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:

BEANS, DRIED-TYPE	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Directed spray.	Sprayer.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil broadcast treatment.	Ground	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil incorporated treatment.	Mechanical sprayer.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest,Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Spray.	Sprayer.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast,Southwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil broadcast treatment.	Injection equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil broadcast treatment.	Injection equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil incorporated treatment.	Sprayer.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil injection treatment.	Injection equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil injection treatment.	Injection equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil broadcast treatment.	Soil injector equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:

BEANS, DRIED-TYPE	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil broadcast treatment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil injection treatment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil injection treatment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Soil broadcast treatment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Soil incorporated treatment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Soil injection treatment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	10163-281	20	G	3	lb / a	NS	NS	Soil incorporated treatment.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	10163-281	20	G	3	lb / a	NS	NS	Soil incorporated treatment.	Postplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	10163-281	20	G	3	lb / a	NS	NS	Soil incorporated treatment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	1.98043875	lb / a	NS	NS	Soil band treatment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	1.98043875	lb / a	NS	NS	Soil injection treatment.	Low pressure.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:

BEANS, DRIED-TYPE	19713-101	87.8	EC	1.98043875	lb / a	NS	NS	Soil injection treatment.	Low pressure.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	1.97002293	lb / a	NS	NS	Directed spray.	Soil injector equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	1.97002293	lb / a	NS	NS	Soil band treatment.	Band sprayer.	Plant bed.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	1.97002293	lb / a	NS	NS	Soil band treatment.	Band sprayer.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	10163-283	87.8	EC	1.96068375	lb / a	NS	NS	Soil band treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	10163-283	87.8	EC	1.96068375	lb / a	NS	NS	Soil band treatment.	Soil injector equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	10163-283	87.8	EC	1.96068375	lb / a	NS	NS	Soil injection treatment.	Soil injector equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	1.54034125	lb / a	NS	NS	Soil injection treatment.	Soil injector equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
BEANS, DRIED-TYPE	19713-101	87.8	EC	1.54034125	lb / a	NS	NS	Soil band treatment.	Injection equipment.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	1.53224005	lb / a	NS	NS	Soil broadcast treatment.	Sprayer.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
BEANS, DRIED-TYPE	19713-561	87.8	EC	1.53224005	lb / a	NS	NS	Soil band treatment.	Injection equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Northwest Allowable Geo Area:

BEANS, DRIED-TYPE	19713-561	87.8	EC	1.53224006	lb / a	NS	NS	Soil band treatment.	Injection equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:	
BEANS, DRIED-TYPE	19713-561	87.8	EC	1.53224006	lb / a	NS	NS	Soil band treatment.	Soil injector equipment.	At planting.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:	
BEANS, DRIED-TYPE	19713-561	87.8	EC	1.53224006	lb / a	NS	NS	Soil band treatment.	Soil injector equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:	
BEANS, DRIED-TYPE	10163-283	87.8	EC	1.52497625	lb / a	NS	NS	Soil band treatment.	Soil injector equipment.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	
BEETS (UNSPECIFIED)	WA140001	87.8	EC	3.0499525	lb / a	2	NS	Chemigation.	Chemigation Irrigation system (e.g., sprinkler, solid set, wheel line, linear, center-pivot, flood, drip, furrow, or trickle)	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Washington,Pacific Northwest Allowable Geo Area:	
BEETS (UNSPECIFIED)	WA140001	87.8	EC	3.0499525	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Washington,Pacific Northwest Allowable Geo Area:	
BEETS (UNSPECIFIED)	WA140001	87.8	EC	3.0499525	lb / a	NS	NS	Soil broadcast treatment.	Ground	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Washington Allowable Geo Area:	
CARROT (INCLUDING TOPS)	AZ150002	87.8	EC	3.0499525	lb / a	3	NS	NS	Soil band treatment.	Band sprayer.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Washington Allowable Geo Area:
CARROT (INCLUDING TOPS)	AZ150002	87.8	EC	3.0499525	lb / a	3	NS	NS	Chemigation.	Sprinkler irrigation.	Postplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Arizona Allowable Geo Area:
CARROT (INCLUDING TOPS)	AZ150002	87.8	EC	3.0499525	lb / a	3	NS	NS	Soil band treatment.	Soil incorporation equipment.	Postplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Arizona Allowable Geo Area:

CARROT (INCLUDING TOPS)	CA080024	87.8	EC	3.0499525	lb / a	3	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Specific County (refer to the issues report) Allowable Geo Area:
CARROT (INCLUDING TOPS)	CA080024	87.8	EC	3.0499525	lb / a	3	NS	Soil incorporated treatment by irrigation.	Sprinkler irrigation.	Germination.		Buffer Restriction: Disallowed Geo Area: Specific County (refer to the issues report) Allowable Geo Area:
CASTOR BEAN	19713-101	87.8	EC	1.98043875	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Postplant.		Incorporate to a maximum depth of 3 inches.
CASTOR BEAN	19713-561	87.8	EC	1.97002293	lb / a	1	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preemergence.		Incorporate to a maximum depth of 3 inches.
CASTOR BEAN	10163-283	87.8	EC	1.960686375	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Postplant.		Incorporate to a maximum depth of 3 inches.
CHARD, SWISS	WA140001	87.8	EC	3.0499525	lb / a	2	NS	Chemigation.	Chemigation irrigation system (e.g., sprinkler, solid set, wheel line, linear, center-pivot, flood, drip, furrow, or trickle)	Postemergence.		Incorporate to a maximum depth of 3 inches.
CHARD, SWISS	WA140001	87.8	EC	3.0499525	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Postemergence.		Incorporate to a maximum depth of 3 inches.
CHARD, SWISS	WA140001	87.8	EC	3.0499525	lb / a	NS	NS	Soil broadcast treatment.	Ground	Lay-by.		Buffer Restriction: Disallowed Geo Area: Washington Allowable Geo Area:
CHARD, SWISS	WA140001	87.8	EC	1.52497625	lb / a	NS	NS	Soil band treatment.	Band sprayer.	Lay-by.		Buffer Restriction: Disallowed Geo Area: Washington Allowable Geo Area:
CLOVER	10163-281	20	G	4	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Western,Pacific Northwest,Northern Allowable Geo Area:
CLOVER	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Incorporate to a maximum depth of 3 inches.

CLOVER	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	NS	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western,Northern,Pacific Northwest Allowable Geo Area:
CLOVER	10163-283	87.8	EC	3.9213675	lb / a	NS	NS	NS	Chemigation.	Postplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
CLOVER	10163-283	87.8	EC	3.9213675	lb / a	NS	NS	NS	Soil incorporation equipment.	Sprinkler irrigation.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
CLOVER	10163-101	87.8	EC	3.74082875	lb / a	NS	NS	NS	Soil incorporated treatment.	Ground		Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
CLOVER	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	NS	Chemigation.	Sprinkler irrigation.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northwest,Northern Allowable Geo Area:
CLOVER	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	NS	Soil incorporated treatment.	Sprayer.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast,Southwest Allowable Geo Area:
CLOVER	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	Chemigation.	Sprinkler irrigation.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest,Western,Pacific Northwest Allowable Geo Area:
CLOVER	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	Soil incorporated treatment.	Ground	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northwest,Southeast Allowable Geo Area:
CLOVER	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	NS	Chemigation.	Sprinkler irrigation.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast,Southwest Allowable Geo Area:
CLOVER	10163-281	20	G	3	lb / a	NS	12 lb / a	30 d	Broadcast	Aerial	Established plantings.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
CLOVER	10163-281	20	G	3	lb / a	NS	12 lb / a	30 d	Broadcast	Ground	Established plantings.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:

CLOVER	10163-281	20	G	3	lb / a	NS	12 lb / a	30 d	Soil incorporated treatment by irrigation.	Sprinkler irrigation.	Established plantings.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
CLOVER	10163-281	20	G	3	lb / a	NS	NS		Soil incorporated treatment.	Ground	Preplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
CONIFERS (PLANTATIONS/NURSERIES)	10163-281	20	G	6	lb / a	NS	NS		Soil incorporated treatment.	Soil incorporation equipment.	Established plantings.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
CONIFERS (PLANTATIONS/NURSERIES)	10163-281	20	G	6	lb / a	NS	NS		Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
CORN (ALL OR UNSPECIFIED)	19713-568	67.8	EC	5.60706	lb / a	NS	5.60706 lb / a	NS	Impregnated dry bulk fertilizer treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Arizona,California,Florida Disallowed Geo Area: Allowable Geo Area:
CORN (ALL OR UNSPECIFIED)	19713-568	67.8	EC	5.60706	lb / a	NS	5.60706 lb / a	NS	Soil band treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Arizona,California,Florida Disallowed Geo Area: Allowable Geo Area:
CORN (ALL OR UNSPECIFIED)	19713-568	67.8	EC	5.60706	lb / a	NS	5.60706 lb / a	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Arizona,California,Florida Disallowed Geo Area: Allowable Geo Area:
CORN (ALL OR UNSPECIFIED)	19713-568	67.8	EC	5.60706	lb / a	NS	5.60706 lb / a	NS	Soil incorporated treatment by irrigation.	Ground	Postplant.		Buffer Restriction: Arizona,California,Florida Disallowed Geo Area: Specific area refer to the issues report) Allowable Geo Area:
CORN (SILAGE)	19713-568	67.8	EC	5.60706	lb / a	NS	5.60706 lb / a	NS	Impregnated dry bulk fertilizer treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Arizona,California,Florida Disallowed Geo Area: Allowable Geo Area:
CORN (SILAGE)	19713-568	67.8	EC	5.60706	lb / a	NS	5.60706 lb / a	NS	Soil band treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Arizona,California,Florida Disallowed Geo Area: Allowable Geo Area:
CORN (SILAGE)	19713-568	67.8	EC	5.60706	lb / a	NS	5.60706 lb / a	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Arizona,California,Florida Disallowed Geo Area: Allowable Geo Area:

CORN (SILAGE)	19713-568	67.8	EC	5.60706	lb / a	NS	5.60706 lb / a	NS	Soil incorporated treatment by irrigation.	Ground	Postplant.		
CORN (SILAGE)	10163-281	20	G	3	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preemergence.	Incorporate to a depth of 1.5 inches.	Buffer Restriction: Arizona, California, Florida Disallowed Geo Area: Specific area (refer to the issues report) Allowable Geo Area:
CORN (SILAGE)	10163-281	20	G	2	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a depth of 2 inches.	Buffer Restriction: Disallowed Geo Area: Northern, Southeast Specific area (refer to the issues report) Allowable Geo Area:
CORN, FIELD	19713-568	67.8	EC	5.60706	lb / a	NS	5.60706 lb / a	NS	Impregnated dry bulk fertilizer treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
CORN, FIELD	19713-568	67.8	EC	5.60706	lb / a	NS	5.60706 lb / a	NS	Soil band treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Arizona, California, Florida Disallowed Geo Area: Allowable Geo Area:
CORN, FIELD	19713-568	67.8	EC	5.60706	lb / a	NS	5.60706 lb / a	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Arizona, California, Florida Disallowed Geo Area: Allowable Geo Area:
CORN, FIELD	19713-568	67.8	EC	5.60706	lb / a	NS	5.60706 lb / a	NS	Soil incorporated treatment by irrigation.	Ground	Postplant.		Buffer Restriction: Arizona, California, Florida Disallowed Geo Area: Specific area (refer to the issues report) Allowable Geo Area:
CORN, FIELD	10163-281	20	G	3	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preemergence.	Incorporate to a depth of 1.5 inches.	Buffer Restriction: Disallowed Geo Area: Specific area (refer to the issues report) Northern Allowable Geo Area:
CORN, FIELD	10163-281	20	G	2	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a depth of 2 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
CORN, POP	19713-568	67.8	EC	5.60706	lb / a	NS	5.60706 lb / a	NS	Impregnated dry bulk fertilizer treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Arizona, California, Florida Disallowed Geo Area: Allowable Geo Area:
CORN, POP	19713-568	67.8	EC	5.60706	lb / a	NS	5.60706 lb / a	NS	Soil band treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Arizona, California, Florida Disallowed Geo Area: Allowable Geo Area:

CORN, POP	19713-568	67.8	EC	5.60706	lb / a	NS	5.60706 lb / a	NS	Soil incorporation equipment.	Preplant.		Buffer Restriction: Arizona, California, Florida Disallowed Geo Area: Allowable Geo Area:
CORN, POP	19713-568	67.8	EC	5.60706	lb / a	NS	5.60706 lb / a	NS	Soil incorporated treatment by irrigation.	Postplant.		Buffer Restriction: Arizona, California, Florida Disallowed Geo Area: Specific area (refer to the issues report) Allowable Geo Area:
CORN, SWEET	10163-281	20	G	3	lb / a	NS	NS	NS	Soil incorporated treatment.	Ground		Buffer Restriction: Northern, Southeast, Specific area (refer to the issues report) Allowable Geo Area:
CORN, SWEET	10163-281	20	G	2	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Incorporate to a depth of 1.5 inches.	Buffer Restriction: Disallowed Geo Area: Northern, Northwest Allowable Geo Area:
COTTON (UNSPECIFIED)	19713-101	87.8	EC	1.98043875	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Incorporate to a depth of 2 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
COTTON (UNSPECIFIED)	19713-561	87.8	EC	1.97002293	lb / a	1	NS	NS	Soil band treatment.	Soil incorporation equipment.	Incorporate to a depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast, Southwest, Allowable Geo Area:
COTTON (UNSPECIFIED)	19713-561	87.8	EC	1.97002293	lb / a	1	NS	NS	Soil band treatment.	Soil injector equipment.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Specific area (refer to the issues report) Southeast, Allowable Geo Area:
COTTON (UNSPECIFIED)	10163-283	87.8	EC	1.96068375	lb / a	NS	NS	NS	Soil broadcast treatment.	Established plantings.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Specific area (refer to the issues report) Southwest, Southeast, Allowable Geo Area:
GRAPEFRUIT	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Directed spray.	Soil incorporation equipment.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast, Western, Southwest Allowable Geo Area:
GRAPEFRUIT	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Directed spray.	Soil incorporation equipment.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western, Southwest, Southeast, Allowable Geo Area:
GRAPEFRUIT	19713-561	87.8	EC	6.12896022	lb / a	NS	NS	NS	Directed spray.	Soil incorporation equipment.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest, Southeast, Western, Allowable Geo Area:

GRAPEFRUIT	19713-561	87.8	EC	6.12896022	lb / a	NS	NS	Directed spray.	Soil incorporation equipment.	Nonbearing nurserystock.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western,Southwest,Southeast Allowable Geo Area:
GRAPEFRUIT	10163-283	87.8	EC	6.099905	lb / a	NS	NS	Directed spray.	Soil incorporation equipment.	Nonbearing.		Buffer Restriction: Disallowed Geo Area: Southeast,Southwest,Western Allowable Geo Area:
GRAPEFRUIT	10163-283	87.8	EC	6.099905	lb / a	NS	NS	Directed spray.	Soil incorporation equipment.	Nonbearing nurserystock.		Buffer Restriction: Disallowed Geo Area: Southwest,Western,Southeast Allowable Geo Area:
GRAPEFRUIT	10163-281	20	G	6	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Nonbearing.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
GRAPEFRUIT	10163-281	20	G	6	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Nonbearing nurserystock.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
GRAPEFRUIT	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Postemergence.		Buffer Restriction: Disallowed Geo Area: Southwest,Southeast,Western Allowable Geo Area:
LEMON	19713-101	87.8	EC	6.161365	lb / a	NS	NS	Directed spray.	Soil incorporation equipment.	Nonbearing.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
LEMON	19713-101	87.8	EC	6.161365	lb / a	NS	NS	Directed spray.	Soil incorporation equipment.	Nonbearing nurserystock.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
LESPEDEZA	10163-281	20	G	4	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western,Pacific Northwest,Northern Allowable Geo Area:
LESPEDEZA	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northern,Western Allowable Geo Area:

LESPEDEZA	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 3 inches.
LESPEDEZA	10163-283	87.8	EC	3.9213675	lb / a	NS	NS	NS	NS	NS	NS	NS	NS	Buffer Restriction: Disallowed Geo Area: Western,Pacific Northwest,Northern Allowable Geo Area:
LESPEDEZA	10163-283	87.8	EC	3.9213675	lb / a	NS	NS	NS	NS	NS	NS	NS	NS	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
LESPEDEZA	19713-101	87.8	EC	3.74082875	lb / a	NS	NS	NS	NS	NS	NS	NS	NS	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
LESPEDEZA	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	NS	NS	NS	NS	NS	NS	Buffer Restriction: Disallowed Geo Area: Southeast,Southwest Allowable Geo Area:
LESPEDEZA	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	NS	NS	NS	NS	NS	Buffer Restriction: Disallowed Geo Area: Southeast,Southwest Allowable Geo Area:
LESPEDEZA	10163-281	20	G	3	lb / a	NS	NS	12 lb / a	NS	12 lb / a	NS	30 d	Broadcast	Aerial
LESPEDEZA	10163-281	20	G	3	lb / a	NS	NS	12 lb / a	NS	12 lb / a	NS	30 d	Broadcast	Ground
LESPEDEZA	10163-281	20	G	3	lb / a	NS	NS	12 lb / a	NS	12 lb / a	NS	30 d	Soil incorporated treatment by irrigation.	Sprinkler irrigation.
LESPEDEZA	10163-281	20	G	3	lb / a	NS	NS	12 lb / a	NS	12 lb / a	NS	30 d	Soil incorporated treatment.	Established plantings.
ORANGE	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	NS	NS	NS	NS	Directed spray.	Preplant.
ORANGE														Incorporate to a maximum depth of 3 inches.

ORANGE	19713-101	87.8	EC	6.161365	lb / a	NS	NS	Directed spray.	Soil incorporation equipment.	Nonbearing nurserystock.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast, Southwest, Western Allowable Geo Area.	
ORANGE	19713-561	87.8	EC	6.12896022	lb / a	NS	NS	Directed spray.	Soil incorporation equipment.	Nonbearing.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast, Southwest, Western Allowable Geo Area.	
ORANGE	19713-561	87.8	EC	6.12896022	lb / a	NS	NS	Directed spray.	Soil incorporation equipment.	Nonbearing nurserystock.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast, Southwest, Western Allowable Geo Area.	
ORANGE	10163-283	87.8	EC	6.099905	lb / a	NS	NS	Directed spray.	Soil incorporation equipment.	Nonbearing.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast, Southwest, Western Allowable Geo Area.	
ORANGE	10163-283	87.8	EC	6.099905	lb / a	NS	NS	Directed spray.	Soil incorporation equipment.	Nonbearing nurserystock.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast, Southwest, Western Allowable Geo Area.	
ORANGE	10163-281	20	G	6	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Nonbearing.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast, Southwest, Western Allowable Geo Area.	
ORANGE	10163-281	20	G	6	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Nonbearing nurserystock.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast, Southwest, Western Allowable Geo Area.	
ORANGE	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast, Southwest, Western Allowable Geo Area.	
ORNAMENTAL AND/OR SHADE TREES	19713-101	87.8	EC	14.963315	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Southeast, Southwest, Western Allowable Geo Area.	
ORNAMENTAL AND/OR SHADE TREES	10163-283	87.8	EC	14.814055	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Southeast, Southwest, Western Allowable Geo Area.	
ORNAMENTAL AND/OR SHADE TREES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	Soil band treatment.	Low pressure.	Spring.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Southeast, Southwest, Western Allowable Geo Area.	

ORNAMENTAL AND/OR SHADE TREES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil broadcast treatment.	Hose	Posttransplant.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	
ORNAMENTAL AND/OR SHADE TREES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil broadcast treatment.	Hose	Pretransplant.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	
ORNAMENTAL AND/OR SHADE TREES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil broadcast treatment.	Hose	Spring.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	
ORNAMENTAL AND/OR SHADE TREES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil broadcast treatment.	Knapsack sprayer.	Posttransplant.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	
ORNAMENTAL AND/OR SHADE TREES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil broadcast treatment.	Knapsack sprayer.	Pretransplant.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	
ORNAMENTAL AND/OR SHADE TREES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil broadcast treatment.	Knapsack sprayer.	Spring.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	
ORNAMENTAL AND/OR SHADE TREES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil broadcast treatment.	Low pressure.	Posttransplant.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	
ORNAMENTAL AND/OR SHADE TREES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil broadcast treatment.	Low pressure.	Pretransplant.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	
ORNAMENTAL AND/OR SHADE TREES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil broadcast treatment.	Low pressure.	Spring.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	
ORNAMENTAL AND/OR SHADE TREES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Posttransplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	
ORNAMENTAL AND/OR SHADE TREES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Pretransplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	

ORNAMENTAL AND/OR SHADE TREES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil incorporation equipment.	Spring.				Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL AND/OR SHADE TREES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil band treatment.	Low pressure.	Posttransplant.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL AND/OR SHADE TREES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil band treatment.	Low pressure.	Pretransplant.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL AND/OR SHADE TREES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil band treatment.	Low pressure.	Spring.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL AND/OR SHADE TREES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil broadcast treatment.	Low pressure.	Posttransplant.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL AND/OR SHADE TREES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil broadcast treatment.	Low pressure.	Pretransplant.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL AND/OR SHADE TREES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil broadcast treatment.	Low pressure.	Spring.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL AND/OR SHADE TREES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Posttransplant.			Incorporate to a maximum depth of 6 inches.
ORNAMENTAL AND/OR SHADE TREES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Pretransplant.			Incorporate to a maximum depth of 6 inches.
ORNAMENTAL AND/OR SHADE TREES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Spring.			Incorporate to a maximum depth of 6 inches.
ORNAMENTAL AND/OR SHADE TREES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil treatment (surface).	Hose	Posttransplant.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:

ORNAMENTAL AND/OR SHADE TREES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil treatment (surface).	Hose	Pretransplant.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL AND/OR SHADE TREES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil treatment (surface).	Hose	Spring.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL AND/OR SHADE TREES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil treatment (surface).	Knapsack sprayer.	Posttransplant.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL AND/OR SHADE TREES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil treatment (surface).	Knapsack sprayer.	Pretransplant.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL AND/OR SHADE TREES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil treatment (surface).	Knapsack sprayer.	Posttransplant.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL GROUND COVER	19713-101	87.8	EC	14.963315	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL GROUND COVER	19713-101	87.8	EC	5.06112125	lb / a	NS	NS	NS	Soil band treatment.	Low pressure.	Spring.			Incorporate to a maximum depth of 6 inches.
ORNAMENTAL GROUND COVER	19713-101	87.8	EC	5.06112125	lb / a	NS	NS	NS	Soil broadcast treatment.	Hose	Posttransplant.			Incorporate to a maximum depth of 6 inches.
ORNAMENTAL GROUND COVER	19713-101	87.8	EC	5.06112125	lb / a	NS	NS	NS	Soil broadcast treatment.	Knapsack sprayer.	Posttransplant.			Incorporate to a maximum depth of 6 inches.
ORNAMENTAL GROUND COVER	19713-101	87.8	EC	5.06112125	lb / a	NS	NS	NS	Soil broadcast treatment.	Knapsack sprayer.	Spring.			Incorporate to a maximum depth of 6 inches.

ORNAMENTAL GROUND COVER	19713-101	87.8	EC	5.06112125	lb / a	NS	NS	Soil broadcast treatment.	Low pressure.	Posttransplant	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL GROUND COVER	19713-101	87.8	EC	5.06112125	lb / a	NS	NS	Soil broadcast treatment.	Low pressure.	Spring.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL GROUND COVER	19713-101	87.8	EC	5.06112125	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Posttransplant	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL GROUND COVER	19713-101	87.8	EC	5.06112125	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Spring.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL GROUND COVER	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	Soil band treatment.	Low pressure.	Posttransplant	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL GROUND COVER	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	Soil band treatment.	Low pressure.	Spring.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL GROUND COVER	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	Soil broadcast treatment.	Low pressure.	Posttransplant	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL GROUND COVER	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	Soil broadcast treatment.	Low pressure.	Spring.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL GROUND COVER	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Posttransplant	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL GROUND COVER	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Spring.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:

ORNAMENTAL GROUND COVER	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	NS	Soil treatment (surface).	Hose	Spring.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL GROUND COVER	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	NS	Soil treatment (surface).	Knapsack sprayer.	Posttransplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL GROUND COVER	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	NS	Soil treatment (surface).	Knapsack sprayer.	Spring.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL HERBACEOUS PLANTS	19713-101	87.8	EC	14.963315	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: California Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL HERBACEOUS PLANTS	10163-283	87.8	EC	14.814055	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Incorporate to a depth of 6 inches.
ORNAMENTAL HERBACEOUS PLANTS	19713-101	87.8	EC	5.06112125	lb / a	NS	NS	NS	Soil band treatment.	Low pressure.	Spring.		Incorporate to a maximum depth of 6 inches.
ORNAMENTAL HERBACEOUS PLANTS	19713-101	87.8	EC	5.06112125	lb / a	NS	NS	NS	Soil broadcast treatment.	Hose	Posttransplant		Incorporate to a maximum depth of 6 inches.
ORNAMENTAL HERBACEOUS PLANTS	19713-101	87.8	EC	5.06112125	lb / a	NS	NS	NS	Soil broadcast treatment.	Knapsack sprayer.	Posttransplant		Incorporate to a maximum depth of 6 inches.
ORNAMENTAL HERBACEOUS PLANTS	19713-101	87.8	EC	5.06112125	lb / a	NS	NS	NS	Soil broadcast treatment.	Knapsack sprayer.	Spring.		Incorporate to a maximum depth of 6 inches.
ORNAMENTAL HERBACEOUS PLANTS	19713-101	87.8	EC	5.06112125	lb / a	NS	NS	NS	Soil broadcast treatment.	Low pressure.	Posttransplant		Incorporate to a maximum depth of 6 inches.

ORNAMENTAL HERBACEOUS PLANTS	19713-101	87.8	EC	5.06112125	lb / a	NS	NS	NS	NS	Soil broadcast treatment.	Low pressure.	Spring.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL HERBACEOUS PLANTS	19713-101	87.8	EC	5.06112125	lb / a	NS	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Posttransplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL HERBACEOUS PLANTS	19713-101	87.8	EC	5.06112125	lb / a	NS	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Spring.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL HERBACEOUS PLANTS	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	NS	NS	Soil band treatment.	Low pressure.	Posttransplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL HERBACEOUS PLANTS	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	NS	NS	Soil band treatment.	Low pressure.	Spring.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL HERBACEOUS PLANTS	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	NS	NS	Soil broadcast treatment.	Low pressure.	Posttransplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL HERBACEOUS PLANTS	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Spring.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL HERBACEOUS PLANTS	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	NS	NS	Soil treatment (surface).	Hose	Posttransplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL HERBACEOUS PLANTS	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	NS	NS	Soil treatment (surface).	Hose	Spring.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:

ORNAMENTAL HERBACEOUS PLANTS	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	NS	NS	Soil treatment (surface).	Knapsack sprayer.	Posttransplant		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL HERBACEOUS PLANTS	10163-283	87.8	EC	5.01063625	lb / a	NS	NS	NS	NS	Soil treatment (surface).	Knapsack sprayer.	Spring.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL WOODY SHRUBS AND VINES	19713-101	87.8	EC	14.963315	lb / a	NS	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL WOODY SHRUBS AND VINES	10163-283	87.8	EC	14.814055	lb / a	NS	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL WOODY SHRUBS AND VINES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	NS	Soil broadcast treatment.	Hose	Posttransplant		Incorporate to a depth of 6 inches.
ORNAMENTAL WOODY SHRUBS AND VINES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	NS	Soil broadcast treatment.	Hose	Pretransplant.		Incorporate to a maximum depth of 6 inches.
ORNAMENTAL WOODY SHRUBS AND VINES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	NS	Soil broadcast treatment.	Hose	Spring.		Incorporate to a maximum depth of 6 inches.
ORNAMENTAL WOODY SHRUBS AND VINES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	NS	Soil broadcast treatment.	Knapsack sprayer.	Posttransplant		Incorporate to a maximum depth of 6 inches.
ORNAMENTAL WOODY SHRUBS AND VINES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	NS	Soil broadcast treatment.	Knapsack sprayer.	Pretransplant.		Incorporate to a maximum depth of 6 inches.
ORNAMENTAL WOODY SHRUBS AND VINES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	NS	Soil broadcast treatment.	Low pressure.	Posttransplant		Incorporate to a maximum depth of 6 inches.
ORNAMENTAL WOODY SHRUBS AND VINES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	NS	Soil broadcast treatment.	Knapsack sprayer.	Spring.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:

ORNAMENTAL WOODY SHRUBS AND VINES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil broadcast treatment.	Low pressure.	Pretransplant.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL WOODY SHRUBS AND VINES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil broadcast treatment.	Low pressure.	Spring.	Incorporate to a maximum depth of 6 inches.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL WOODY SHRUBS AND VINES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Posttransplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL WOODY SHRUBS AND VINES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Pretransplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL WOODY SHRUBS AND VINES	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Posttransplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL WOODY SHRUBS AND VINES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil band treatment.	Low pressure.	Posttransplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL WOODY SHRUBS AND VINES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil band treatment.	Low pressure.	Pretransplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL WOODY SHRUBS AND VINES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil band treatment.	Low pressure.	Spring.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL WOODY SHRUBS AND VINES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil broadcast treatment.	Low pressure.	Posttransplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL WOODY SHRUBS AND VINES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil broadcast treatment.	Low pressure.	Pretransplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
ORNAMENTAL WOODY SHRUBS AND VINES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	Soil broadcast treatment.	Low pressure.	Spring.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:

ORNAMENTAL WOODY SHRUBS AND VINES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 6 inches.
ORNAMENTAL WOODY SHRUBS AND VINES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 6 inches.
ORNAMENTAL WOODY SHRUBS AND VINES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 6 inches.
ORNAMENTAL WOODY SHRUBS AND VINES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 6 inches.
ORNAMENTAL WOODY SHRUBS AND VINES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 6 inches.
ORNAMENTAL WOODY SHRUBS AND VINES	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 6 inches.
PINE SEEDLINGS	19713-101	87.8	EC	6.161365	lb / a	NS	NS	NS	NS	NS	NS	NS	Incorporate to a maximum depth of 6 inches.
PINE SEEDLINGS	10163-283	87.8	EC	6.099905	lb / a	NS	NS	NS	NS	NS	NS	NS	Buffer Restriction: Disallowed Geo Area: Southwest,Southeast Allowable Geo Area:

POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-283	87.8	EC	7.842735	lb / a	NS	NS	Soil band treatment.	Low pressure.	Postplant.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-283	87.8	EC	7.842735	lb / a	NS	NS	Soil band treatment.	Soil incorporation equipment.	Preplant.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-283	87.8	EC	7.842735	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-283	87.8	EC	7.842735	lb / a	NS	NS	Soil incorporated treatment by irrigation.	Sprinkler irrigation.	Postplant.	Buffer Restriction: Disallowed Geo Area: Specific area (refer to the issues report) Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	6.161365	lb / a	NS	NS	Chemigation.	Chemigation Irrigation system (e.g., sprinkler, solid set, wheel line, linear, center-pivot, flood, drip, furrow, or trickle)	Postemergence.	Incorporate to a maximum depth of 3 inches.
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	6.161365	lb / a	NS	NS	Chemigation.	Postemergence.	Drag-off.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	6.161365	lb / a	NS	NS	Soil incorporated treatment.	Ground	Lay-by.	Buffer Restriction: Disallowed Geo Area: Southwest, Northern Pacific Northwest Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	6.161365	lb / a	NS	NS	Soil incorporated treatment.	Ground	Preplant.	Buffer Restriction: Disallowed Geo Area: Specific County (refer to the issues report), Pacific Northwest, Southwest, Northern Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	6.161365	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Fall.	Buffer Restriction: Disallowed Geo Area: North Dakota, Minnesota Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	6.12896022	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Postemergence.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:

POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	6.12896022	lb / a	NS	NS	Soil incorporated treatment.	Postemergence.		Buffer Restriction: Disallowed Geo Area: Pacific Northwest Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	6.12896022	lb / a	NS	NS	Soil incorporated treatment.	Preemergence.		Buffer Restriction: Disallowed Geo Area: Pacific Northwest/Northern Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	6.12896022	lb / a	NS	NS	Soil incorporated treatment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Northern/Pacific Northwest Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	6.12896022	lb / a	NS	NS	Soil incorporated treatment.	Preplant (Fall).		Buffer Restriction: Disallowed Geo Area: Minnesota, North Dakota Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	6.12896022	lb / a	NS	NS	Soil incorporated treatment.	Ground		Buffer Restriction: Disallowed Geo Area: Southwest Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	6.12896022	lb / a	NS	NS	Soil incorporated treatment.	Postemergence.		Buffer Restriction: Disallowed Geo Area: Southwest Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	6.12896022	lb / a	NS	NS	Soil incorporated treatment.	Preemergence.		Buffer Restriction: Disallowed Geo Area: Southwest Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-283	87.8	EC	6.099905	lb / a	NS	NS	Soil incorporated treatment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Southwest Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-283	87.8	EC	6.099905	lb / a	NS	NS	Soil band treatment.	Drag-off.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-283	87.8	EC	6.099905	lb / a	NS	NS	Soil incorporated treatment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Specific County (refer to the issues report) Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-283	87.8	EC	6.099905	lb / a	NS	NS	Soil incorporated treatment.	Lay-by.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:

POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-281	20	G	6	lb / a	NS		Soil incorporated treatment.	Soil incorporation equipment.	Drag-off.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest/Northern Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-281	20	G	6	lb / a	NS		Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest/Northern Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-281	20	G	4.5	lb / a	NS		Soil incorporated treatment.	Soil incorporation equipment.	Fall.	Buffer Restriction: Disallowed Geo Area: Minnesota, North Dakota Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-281	20	G	4	lb / a	NS		Soil incorporated treatment.	Soil incorporation equipment.	Lay-by.	Buffer Restriction: Disallowed Geo Area: Northern Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	3.9608775	lb / a	NS		Directed spray.	Soil incorporation equipment.	Lay-by.	Incorporate to a maximum depth of 3 inches.
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	3.9608775	lb / a	NS		Soil incorporated treatment.	Soil incorporation equipment.	Lay-by.	Incorporate to a maximum depth of 3 inches.
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	3.94004585	lb / a	NS		Soil incorporated treatment.	Sprayer.	Postemergence.	Incorporate to a maximum depth of 3 inches.
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	3.0806825	lb / a	NS		Chemigation.	Sprinkler system.	Lay-by.	Buffer Restriction: Disallowed Geo Area: Western,Northern Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	3.0806825	lb / a	NS		Chemigation.	Sprinkler system.	Postemergence.	Incorporate to a maximum depth of 3 inches.
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	3.0806825	lb / a	NS		Soil band treatment.	Band sprayer.	Postplant.	Incorporate to a maximum depth of 3 inches.
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	3.0806825	lb / a	NS		Soil band treatment.	Band sprayer.	Preplant.	Incorporate to a maximum depth of 3 inches.

POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil band treatment.	Soil incorporation equipment.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil broadcast treatment.	Soil incorporation equipment.	Drag-off.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil broadcast treatment.	Soil incorporation equipment.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil incorporated treatment.	Sprayer.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	At emergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northern, Southwest Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Drag-off.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Chemigation.	Chemigation system (e.g., sprinkler, solid set, wheel line, linear, center pivot, flood, drip furrow, or trickle)	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western, Northern Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil incorporated treatment.	Sprayer.	Preemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil incorporated treatment.	Sprayer.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western Allowable Geo Area:

POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Chemigation.	Sprinkler system.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil band treatment.	Soil incorporation equipment.	Postplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil band treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil incorporated treatment.	Mechanical sprayer.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil incorporated treatment.	Mechanical sprayer.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Drag-off.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	NS	Chemigation.	Sprinkler.	Postemergence.	Incorporate to a maximum depth of 3 inches.
POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-281	20	G	3	lb / a	NS	NS	Soil band treatment.	Low pressure.	Preplant.		Buffer Restriction: Disallowed Geo Area: Southwest Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-281	20	G	3	lb / a	NS	NS	Soil incorporated treatment.	Granule applicator.	Drag-off.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-281	20	G	3	lb / a	NS	NS	Soil incorporated treatment.	Granule applicator.	Lay-by.		Buffer Restriction: Disallowed Geo Area: Western, Southeast, Southwest Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	10163-281	20	G	3	lb / a	NS	NS	Soil incorporated treatment.	Granule applicator.	Preplant.		Buffer Restriction: Disallowed Geo Area: Southeast, Western, Southwest Allowable Geo Area:

POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	1.54034125	lb / a	NS	NS	Soil band treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-101	87.8	EC	1.54034125	lb / a	NS	NS	Soil broadcast treatment.	Ground	Postplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
POTATO, WHITE/IRISH (OR UNSPECIFIED)	19713-561	87.8	EC	1.53224006	lb / a	NS	NS	Soil broadcast treatment.	Soil incorporation equipment.	Postplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast Allowable Geo Area:
SAFFLOWER (UNSPECIFIED)	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western,Northern Pacific Northwest Allowable Geo Area:
SAFFLOWER (UNSPECIFIED)	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western,Pacific Northwest,Northern Allowable Geo Area:
SAFFLOWER (UNSPECIFIED)	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest,Northern,Western Allowable Geo Area:
SAFFLOWER (UNSPECIFIED)	10163-281	20	G	3	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northern,Western Allowable Geo Area:
SAFFLOWER (UNSPECIFIED)	19713-561	87.8	EC	2.97692353	lb / a	2	NS	NS	Chemigation.	Sprinkler irrigation.	Postemergence.	Incorporate to a maximum depth of 3 inches.
SUGAR BEET	19713-101	87.8	EC	4.62102375	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Fall.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: North Dakota,Minnesota Allowable Geo Area:
SUGAR BEET	19713-561	87.8	EC	4.59672016	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant (Fall).	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Minnesota, North Dakota Allowable Geo Area:
SUGAR BEET	10163-283	87.8	EC	4.57492875	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Fall.		Buffer Restriction: Disallowed Geo Area: North Dakota,Minnesota Allowable Geo Area:

SUGAR BEET	10163-281	20	G	4.5	lb / a	NS	NS	NS	Soil incorporation equipment.	Fall.		Buffer Restriction: Disallowed Geo Area: Minnesota,North Dakota Allowable Geo Area:
SUGAR BEET	19713-101	87.8	EC	3.0806825	lb / a	2	NS	NS	Sprinkler irrigation.	Postemergence.		Buffer Restriction: Disallowed Geo Area: Pacific Northwest,Northern Allowable Geo Area:
SUGAR BEET	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	NS	Soil broadcast treatment.	Postemergence.		Buffer Restriction: Disallowed Geo Area: Pacific Northwest,Northern Allowable Geo Area:
SUGAR BEET	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	NS	Soil incorporated treatment.	Postemergence.		Buffer Restriction: Disallowed Geo Area: Western,Pacific Northwest,Northern Allowable Geo Area:
SUGAR BEET	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	NS	Soil incorporation equipment.	Postemergence.		Buffer Restriction: Disallowed Geo Area: Western,Pacific Northwest,Northern Allowable Geo Area:
SUGAR BEET	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	NS	Sprinkler irrigation.	Post-thinning.		Buffer Restriction: Disallowed Geo Area: Southwest,Allowable Geo Area:
SUGAR BEET	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	NS	Sprinkler system.	Postemergence.		Buffer Restriction: Disallowed Geo Area: Western,Allowable Geo Area:
SUGAR BEET	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	NS	Soil incorporation treatment.	Preplant.		Buffer Restriction: Disallowed Geo Area: South Dakota,Minnesota,Michigan,Iowa,Other (refer to issues report),North Dakota Allowable Geo Area:
SUGAR BEET	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	Soil band treatment.	Postemergence.		Buffer Restriction: Disallowed Geo Area: Pacific Northwest,Northern Allowable Geo Area:
SUGAR BEET	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	Soil broadcast treatment.	Postemergence.		Buffer Restriction: Disallowed Geo Area: Northern,Western,Pacific Northwest,Allowable Geo Area:
SUGAR BEET	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	Soil incorporated treatment.	Postemergence.		Buffer Restriction: Disallowed Geo Area: Pacific Northwest,Northern,Western Allowable Geo Area:
SUGAR BEET	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	NS	Soil incorporation equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Northern Allowable Geo Area:

SUGAR BEET	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest,Western,Northern Allowable Geo Area.
SUGAR BEET	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Thinning.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest Allowable Geo Area.
SUGAR BEET	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northwest,Southwest,Northern Allowable Geo Area.
SUGAR BEET	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northwest,Western,Pacific Northwest,Southwest Allowable Geo Area.
SUGAR BEET	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northwest,Western,Southeast,Northern Allowable Geo Area.
SUGAR BEET	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Soil incorporated treatment.	Ground	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Specific region refer to the Issues report),North Dakota,Iowa,Minnesota,South Dakota,Michigan Allowable Geo Area.
SUGAR BEET	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Soil injection treatment.	Soil injector equipment.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northwest,Southwest,Northern Allowable Geo Area.
SUGAR BEET	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Soil injection treatment.	Soil incorporation equipment.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northwest,Western,Pacific Northwest,Southwest Allowable Geo Area.
SUGAR BEET	10163-281	20	G	3	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Post-thinning.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northwest,Southwest,Northern Allowable Geo Area.
SUGAR BEET	19713-101	87.8	EC	1.98043875	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Post-thinning.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northwest,Southwest,Northern Allowable Geo Area.
SUGAR BEET	19713-561	87.8	EC	1.97002293	lb / a	NS	NS	3.06448011 lb / a	Soil incorporation equipment.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northwest,Southwest,Northern Allowable Geo Area.
SUGAR BEET	19713-101	87.8	EC	1.54034125	lb / a	NS	NS	Soil band treatment.	Soil injector equipment.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northwest,Pacific Northwest,Northern Allowable Geo Area.
SUGAR BEET	10163-283	87.8	EC	1.52497625	lb / a	NS	NS	Soil band treatment.	Soil injector equipment.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Western,Southeast,Northern,Pacific Northwest Allowable Geo Area.

SUNFLOWER	19713-101	87.8	EC	4.62102375	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Fall.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: North Dakota,Minnesota Allowable Geo Area:
SUNFLOWER	10163-283	87.8	EC	4.57492875	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant (Fall).		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
SUNFLOWER	10163-281	20	G	4.5	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Fall.		Buffer Restriction: Disallowed Geo Area: North Dakota,Minnesota Allowable Geo Area:
SUNFLOWER	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.			Buffer Restriction: Disallowed Geo Area: North Dakota,Kansas,Colorado,Minnesota Allowable Geo Area:
SUNFLOWER	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
SUNFLOWER	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Postemergence.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
SUNFLOWER	10163-281	20	G	3	lb / a	NS	NS	Soil incorporated treatment.	Preplant (Spring).			Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
SWEET POTATO	19713-101	87.8	EC	7.4816575	lb / a	NS	NS	Soil broadcast treatment.	Soil incorporation equipment.			Buffer Restriction: Disallowed Geo Area: South Dakota,North Dakota,Nebraska,Minnesota,Kansas,Colorado Allowable Geo Area:
SWEET POTATO	10163-283	87.8	EC	7.4070275	lb / a	NS	NS	Soil treatment (surface).	Low pressure.	Postplant.		Buffer Restriction: Disallowed Geo Area: Southeast,Southwest Allowable Geo Area:
SWEET POTATO	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Southeast,Southwest Allowable Geo Area:
SWEET POTATO	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Southeast,Southwest Allowable Geo Area:

SWEET POTATO	19713-101	87.8	EC	1.98043875	lb / a	NS	NS	Soil band treatment.	Low pressure.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest,Southeast Allowable Geo Area:
SWEET POTATO	19713-101	87.8	EC	1.98043875	lb / a	NS	NS	Soil broadcast treatment.	Low pressure.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest,Southeast Allowable Geo Area:
SWEET POTATO	10163-283	87.8	EC	1.96068375	lb / a	NS	NS	Soil band treatment.	Low pressure.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast,Southwest Allowable Geo Area:
SWEET POTATO	10163-283	87.8	EC	1.96068375	lb / a	NS	NS	Soil broadcast treatment.	Low pressure.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southeast,Southwest Allowable Geo Area:
TOMATO	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil band treatment.	Soil incorporation equipment.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Specific County (refer to the issues report) Allowable Geo Area:
TOMATO	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil treatment (surface).	Soil incorporation equipment.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Specific County (refer to the issues report) Allowable Geo Area:
TOMATO	19713-561	87.8	EC	3.06448011	lb / a	1	NS	Soil band treatment.	Soil incorporation equipment.	Postemergence.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Specific County (refer to the issues report) Allowable Geo Area:
TOMATO	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Soil band treatment.	Low pressure.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Specific County (refer to the issues report) Allowable Geo Area:
TOMATO	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Soil treatment (surface).	Low pressure.	Lay-by.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Specific County (refer to the issues report) Allowable Geo Area:
TOMATO	FL070007	87.8	G	4	lb / a	NS	NS	Soil broadcast treatment.	Low pressure.	Pretransplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Florida Allowable Geo Area:
TREFOIL	10163-281	20	G	4	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northern,Pacific Northwest,Western Allowable Geo Area:

TREFOIL	19713-101	87.8	EC	3.9608775	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northern,Western Allowable Geo Area:	
TREFOIL	19713-561	87.8	EC	3.94004585	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest,Northern,Western Allowable Geo Area:	
TREFOIL	10163-283	87.8	EC	3.9213675	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Postplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:	
TREFOIL	10163-283	87.8	EC	3.9213675	lb / a	NS	NS	Soil incorporated treatment.	Soil incorporation equipment.	Preplant.		Buffer Restriction: Disallowed Geo Area: Pacific Northwest,Allowable Geo Area:	
TREFOIL	19713-101	87.8	EC	3.74082875	lb / a	NS	NS	Soil incorporated treatment.	Ground	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest,Allowable Geo Area:	
TREFOIL	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Soil incorporated treatment.	Sprayer.	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest,Southeast Allowable Geo Area:	
TREFOIL	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Established plantings.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Northwest,Pacific Northwest,Western Allowable Geo Area:	
TREFOIL	19713-561	87.8	EC	3.06448011	lb / a	NS	NS	Soil incorporated treatment.	Ground	Preplant.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Southwest,Southeast Allowable Geo Area:	
TREFOIL	10163-281	20	G	3	lb / a	NS	12 lb / a	30 d	Broadcast	Aerial	Established plantings.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
TREFOIL	10163-281	20	G	3	lb / a	NS	12 lb / a	30 d	Broadcast	Ground	Established plantings.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
TREFOIL	10163-281	20	G	3	lb / a	NS	12 lb / a	30 d	Soil incorporated treatment by irrigation.	Sprinkler irrigation.	Established plantings.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:

TREFOIL	10163-281	20	G	3	lb / a	NS	NS	Soil incorporated treatment.	Ground	Preplant.		Buffer Restriction: Disallowed Geo Area: Allowable Geo Area:
WALNUT (ENGLISH/BLACK)	19713-101	87.8	EC	3.0806825	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Established plantings.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Western Allowable Geo Area:
WALNUT (ENGLISH/BLACK)	19713-561	87.8	EC	3.06448011	lb / a	1	NS	Chemigation.	Sprinkler irrigation.	Established plantings.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Western Allowable Geo Area:
WALNUT (ENGLISH/BLACK)	10163-283	87.8	EC	3.0499525	lb / a	NS	NS	Chemigation.	Sprinkler irrigation.	Established plantings.	Incorporate to a maximum depth of 3 inches.	Buffer Restriction: Disallowed Geo Area: Pacific Northwest Western Allowable Geo Area: